The delivery of multimedia programmes through LMS; An Australian approach

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Certification of Authorship

I certify that the arguments, results and analysis reported in this thesis are entirely my own effort [except] where otherwise indicated. I also certify that the work is original and has not been previously submitted for any other awards.

Signature of Candidate

Date:

Dedication

To my family and friends who have given their support and advice during the course of this study.

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Glossary

BLS	Blackboard Learning System
CAE	Centre of Advanced Education
COTS	Commercial Off The Shelf
DEST	Department of Education, Science and Technology
DETYA	Department of Education, Training and Youth Affairs
FLAS	Flexible Learning Access Services
GU	Griffith University
HECS	Higher Education Contribution Scheme
IHL	Institute of Higher Learning
IHE	Institute of Higher Education
LMS	Learning Management Systems
OLT	Online Learning and Training
QANTM	Queensland & Northern Territory Multimedia
QUT	Queensland University of Technology
TALSS	Teaching and Learning Support Services

Abstract

Australia's tertiary educational environment is changing; in the past decade, it has faced a new set of challenges and pressures (Cunningham et al., 1998) that are encroaching on the traditional definitions of what higher education is.

These challenges often dictate the directions in which the tertiary education environment evolves into. Within the framework of institutional reforms, the adopted policies are often the best indicators of that transition.

Flexible delivery or learning has been espoused as a means of meeting and mediating some of those challenges. With their emphasis on catering to the needs and expectations of the consumer in a consumerist society, flexible policies are becoming the norm in most institutes of higher learning. However, of interest within the structure of the flexible delivery approach is the development of learner management systems (LMS).

The question is what are learner management systems? What do they represent and what do they offer to the learner that differentiates it from the traditional forms of learning? In its basic form, a learner management system is essentially a series of processes that are developed and organised so as to efficiently provide the learner with the required access and interaction required to facilitate his or her learning. However, what are the benefits of being aware of the capabilities and limitations afforded by such approaches? How does it contribute to the process of teaching and learning in the context of higher education?

The effectiveness of how these learner management systems are used in context to its application in multimedia programmes is of importance. Institutions are progressively introducing similar learning systems into their delivery framework. The question as to whether a singular adaptive system or a customised option remains to be tested.

CHAPTER 1

1. Introduction

1.1 Learner Management Systems in Queensland IHLs

A major issue that many universities encounter today is that of integrating and implementing flexible delivery and learning in higher education. Many different approaches to address this issue have been identified in recent years and this thesis will critically evaluate how successful these approaches have been in addressing the issue.

The development of a new global socio-economic structure in the late 20th and early 21st century has signalled a change in the way that learning is approached. This change in itself is significant in that it points to a transition in the way that learning has traditionally been interpreted and delivered; that is through the face-to-face lecture-tutorial system. But with Australian universities and other institutions of higher learning becoming increasingly self-funding and more independent from government agencies, there is a need to optimize their operational costs, and to seek more effective and efficient methods of conducting lessons. The adoption of a flexible delivery model has been a fortuitous decision since as even before the turn of the millennium, the concept of flexible delivery was being developed in universities worldwide. Contained within that flexible delivery policy framework often existed the learner management systems specific to that institution. The learner management systems each had to be designed to match the specific operating requirements of the respective institutions. It is these systems and of how they influenced the learning experienced by the enrolled students in the studied institutions that are of interest.

Learner management systems can be described as a set of procedures and applications that when applied collectively results in an enhanced learning environment for the learner. What LMS does is to streamline the workflow that is found within any learning situation and manages that as per the

learning abilities and requirements of the individual learner. It is a generic label that classifies the components of teaching and learning into a packaged product, and through that system delivers the information through the conduit of an institution to the final end users.

Traditionally, the delivery of university education was, for the most part, through the attendance of scheduled face-to-face lectures and tutorials at the designated campus facilities. This approach was considered ideal for its period as it allowed for a mass delivery approach to the dissemination of information to students. The adoption of this teaching style allowed for a rapid transfer of knowledge from a single source to multiple destinations. In addition, it also took into consideration the available technological capabilities of the institutions. This style was adopted in consideration of the prevailing view on what and how education is to be defined and delivered.

It is only in recent years that the consideration of the possibility of an alternative mode had the opportunity to take root. In Queensland, Australia, the adoption of flexible delivery approach has been in line with the evolutionary development of the higher education system. With the adoption of such flexible delivery policy, the need then was to find a vehicle that was suitable to deliver the desired outcomes to the end users. That vehicle came in the form of the LMS concept. The LMS concept was applied in consideration of the changing learning environment and of the multi-modality of learning that is a central aspect of that changed environment.

This thesis will present a comparative study of how three different Queensland tertiary education providers have approached the issue of adopting and integrating a learner management system into their institutional flexible delivery framework with respect to its application in their undergraduate multimedia programmes. In addition, there will be an examination of the influence that the institutional philosophy has on the

selection of the appropriate approach to implementing flexible delivery policies.

1.2 Thesis aims

The aims of the thesis is to study the level of user response with regard to the implementation of a learner management approach towards the conduct of media technology degree programmes in selected Queensland Institutes of Higher Learning. (IHLs).

1.3 Scope and limits

The scope of the thesis has been limited to three institutions of higher learning located in Brisbane, Queensland, Australia. They are the Queensland University of Technology (QUT), Griffith University and QANTM. In order to maintain the relevance and to establish the comparative baseline, the decision to limit the research to programmes offering similar course structures was made.[1]

[1] This thesis uses the term "programmes" to refer to diplomas and degree programmes offered by IHLs. Australian universities use a range of terms to refer to such programmes (e.g. QUT uses the term "courses"). For the sake of simplicity, the thesis will use the word programmes regardless of which university is being discussed.

1.4 The Chapter structure

Chapter 2 - Literature review

Chapter 2 explores the existing schools of thought in relation to the adoption of flexible delivery as a key approach within university systems. It will show a study of leaders in the field of changing teaching and learning models and the impact they have on the approaches to learning. It will also examine some of the factors that influence the adoption of flexible delivery within the learning systems.

Within the context of its use in higher education, this chapter introduces to the reader the contemporary thinking on the subject. The use of the flexible delivery approaches as a solution to the changing learning environment and through that, the adoption of learning management systems as the vehicle to deliver the need.

What this chapter will do is to establish the framework on which the issue is to be positioned. It will cover the changing economic situation and how that results in a like change in the learning expectations, both in terms of the content and the mode of instructional delivery. The chapter will be categorized into sections that will describe the points that are of significance to the research question.

Section 2.2 examines how the transition into the knowledge society have directed the changes to the learning demands and environment and how these changes have resulted in the need for institutions to realign their instructional methods so as to remain viable.

Sections 2.2 to 2.5 describe the movement towards the next stage in societal development and how it is a key aspect of the paper. The reader will be introduced to the significance of the relationship between environment, demands, and technology and how that results in the development and design of a delivery approach.

Sections 2.7 to 2.8 will examine the present state of higher education and how it will examine the present state of higher education and how it will meet the challenges as defined earlier, through the use of flexible learning approaches and technologies.

Chapter 3 - Methodology

This chapter describes the methodology that was used to articulate the issues and questions raised during the research. Chapter 3 will explore the theoretical framework used in the design and implementation of the various data collection devices. It also examines the specific quantitative and qualitative models and methods applied and the rationale for their use. Such methods included case studies, surveys and interviews.

Chapter 3 also outlines the procedure through which the research was developed and how the data was collected and analysed.

Chapter 4 – Institutional case studies

This chapter will examine and compare the specific cases that will be used to illustrate the issues raised earlier. Within the context of higher education in Queensland, the identified cases of the Queensland University of Technology, Griffith University and QANTM will be explored as case studies. The selection of the three institutions was based on the institutional philosophies that were in place during the initial introduction of specific flexible learning pedagogies into their delivery methodologies. Chapter 4 will also detail how the institutional structure(s) and the divisions within each institution have contributed to the implementation of the flexible delivery mode in the identified programmes. It will also examine how each of these institutions have selected and implemented their respective Learner Management Systems within that model.

Chapter 5 – The student survey

This chapter presents a summary and analysis of data collected through an online survey of 60 students from the three participating educational institutions. The survey was designed to allow for the profiling of the respective institutional success in integrating a LMS within a flexible delivery model.

Chapter 6 – Discussion & conclusion

This chapter will present the study's findings. The observations will be summarized and analysed for their significance with regard to policy development in integrating a learner management system within a new media environment. The key findings will be derived from the end users' response which in turns reflects the success and effectiveness of the respective delivery systems.

This chapter will also offer suggestions for areas in which further research is needed. Based on the research findings, recommendations for implementing learner management systems as part of the move towards flexible learning in Queensland's Institutes of Higher Education will be put forward.

1.5 Definitions

Within the scope of the thesis, the definitions of what is flexible delivery and learning will be adapted from the definitions established in the institutional policies of both the Queensland University of Technology (Queensland University of Technology, 2004a) and Griffith University (Griffith University, 2004b).

For the purpose of the thesis, flexible delivery approach is defined as a course instruction and delivery approach that is designed to meet the learning needs of students through the delivery of required materials via an

accessible means. Within the same context, flexible delivery will be used to refer to the identified approach of using online learning as the vehicle.

Also used will be the abbreviation IHL which stands for Institutes of Higher Learning, this abbreviation will be used through the paper to describe the subject.

CHAPTER 2

2. Literature review

This chapter will provide the reader with an introduction into the readings on the subject of how the changing global economic and employment landscape resulted in the need for institutions to develop alternative teaching and learning approaches.

2.1 Introduction

In contemporary society, socio-economic, political and institutional practices and beliefs are constantly being challenged and revised (Held and McGrew, 2000). This statement reflects the state of change that can be seen through the viewfinder of those living in western, developed nations in the 21st century.

This propensity for change and the processes of adapting to that change are characteristic of what can be defined as a transitional period or what Castells (2004b) declares to be an evolution of societal function. This is a movement that leads to changes in both the identity and function of how society is defined. The transition from the pre-industrial agrarian to the post-industrial society (Bell, 1973) that we are in the midst of is a testament to that change.

To describe such movement, it becomes necessarily to ask: what entails and embodies the definition of society? Society, in its basic form, is an amalgamation of distinct and separate entities into a singular unit. It is the outcome of a creation of an ordered structure. The word 'society' itself is a derivative of the Latin term for a *fellowship.*

The relationship between the state of society and the level of literacy is one of mutual dependency. For any society to transit to the next level, there needs to be present a literacy level that is capable of supporting that. If there is such a situation where there is an imbalance of capabilities, the

required elements needed for that transition will not be present. It is thus crucial for this study to define that situation.

2.2 Defining the information & knowledge society

To further the discussion of societal evolution, there needs to be a baseline reference. The information society is an extension of the industrial society and from that, the agrarian societies. The information society plays a role in establishing the conditions and the environment that this paper begins its journey in. Contextually, the information society is a container; it is a mould for the containment of the ideas and knowledge of which practical applications of flexible delivery policies such as those of the studied IHLs of QUT and Griffith University are constructed from.

The definition of what an information society encompasses is dependent on the specific context in which the term is used. The most common definition of the information society is that it is an indicator of economic changes (Al-Hawamdeh and Hart, 2002). The information society essentially exists when the citizens have the knowledge that their interactions are enabled by their ability to make use of technology and further enhance it. This relationship between citizens and information and technology is described by Queau (2002) in his article on the relationship that exists with regards to the function that information plays in a global society.

In Western societies, the transition into the modern information society took root circa the 1970s. This was the period where changes in the consumer behaviours and attitudes towards technological use took place. Although information in its various forms was already a commodity in terms of its economic value before that time, it was only with the advent of the development and consequent use of information and communicative technologies that information became a significant variable in the distribution of economic performance.

From that initial emergence, the growth of the information society took on an accelerated rate. It must be highlighted that within the concept of the information society, the relationship between technology and social evolution involves an important if not crucial symbiosis.

As Crawford (1983) explains, the information society results from processes that involve a relationship between the sectors of industry, services and technology. This relationship takes into calculation the contribution made by the various sectors and that determines the degree to which the use of information plays in that specific system.

It is also important to note the difference between the definitions of what constitutes the information society and that of what is an information economy. Although the two concepts are similar and often share common characteristics, they might not always lead to the same thing. The differences between the information and knowledge societies will be discussed in section 2.4.

Both of the terms of ‘information society’ and ‘information economy’ are often used to describe the level and mode of economic activity that occurs within a specific economic system. In many cases, both terms use and apply the same interpretive measures.

The transition from the information society to the knowledge society is also an area of specific interest. The objective of this thesis is to build an understanding of the relationship that exists between the societal and the higher education system and how they relate to the development of learning technologies and pedagogies.

For the concepts of the knowledge society and the knowledge economy, the same problem with terminology applies. The difference between a society and an economy is one that can be abstracted as a difference on the macro and micro level of study.

The modern interpretation of what is defined as a society is one that is technology oriented, with a focus on its ability to adapt.

2.3 The movement towards an information society

Information technology has become an integral aspect of the Western societies. An information society is one that embraces the use of information and technology in all aspects of societal functioning. Crawford (1983) defines the information society as a follow-up to the service society, a society where the emphasis is on the provision of information, and where the information sector exceeds that of the other sectors in terms of its economic revenue.

From that approach, the information society is one of information production and within that society, exists the information economy which provides and sustains that consumption. The provision of the information and the consumption of that information becomes a self-perpetuating cycle in which the demand for the information drives production, which results in a cyclical movement.

Working with that definition and applying it to the context of information technology in higher education, it can be seen that the technology supports and enhances the learning experience through the facilitation of access to various sources of information.

However, a problem exists within the information society in relation to its application. Information is a product; it is a quantifiable element whose value is of a set measure. How effective it is, irregardless of its quantity, depends on how it is applied in the desired context. Information without knowledge is akin to having access to a resource without the ability to make use of that resource.

The characteristics of the information society are that it places specific value on the production of information and how much it contributes to the

economy. It however fails to account of the consumption as a revenue generating activity as was described by Porat (1976) in his article about what was defined as the then emerging information sector.

In a field of alternative learning methodologies this creates a technological framework and mentality in which the use of technology is used to support and enhance the learning experience. In addition to the experiential aspects of the learning process, through the use of technology, the process through which learning takes place is also revolutionized.

Technology mediated learning creates an environment where learning is supported with the use of technology; i.e. through the use of multimodal learning strategies that allows a learner to acquire a set knowledge through a variety of different learning styles.

The birth of the information society also resulted in the emergence of an entirely new culture with regards to the mentality and practices in societal functions. This new culture would then later impact on the development of the latter societal systems.

2.4 From information to knowledge to network

The development of the knowledge society was heralded by the onset of integrated networked environment. The characteristic of the knowledge society is that it is based on an evolved form of the information society. While the information society relies on the practical use of technology as a key driver of society, the knowledge society relies on the application of information which itself is supplanted by technology to drive its momentum.

By making the transition from a production-oriented emphasis to one that is application-oriented, the knowledge society arguably allows for the limitations associated with the previous society to be overcome. The implications of this transition on the societal level are that it directs the shift in practices, both in the mindset and the applications.

However, the knowledge society is not the end point of societal development. With changes in the evolution of contemporary society, the gestation period between societal transitions is increasingly shorter.

The knowledge society is an integrated environment, where information seamlessly transacts across both spatial and chronological boundaries. Information existing in the knowledge society is able to function effectively without being limited by physical distance or transmission time due to the efficiencies afforded by developments in technology. The knowledge society also contains the knowledge economy. It is decentralized and multimodal.

Characteristics of this society are that it has within its “organization” the following elements:

- Increased complexities in both product and consumption processes,
- Advanced competencies in the production process,
- Increased consumer evaluation burden due to increased complexity of goods and services,
- Trend towards specialization,
- Increased emphasis on informational skills and services, and
- Uncertainty (Hodgson, 2000).

What the above does not describe is how these characteristics can impinge on the development of the society through the influence of the way in which the higher education environment is designed.

The knowledge society is one that emphasizes the importance of the ability to understand, manipulate and develop knowledge for the purposes of consumption. It will result in changes in behaviour patterns and relationships.

The next step lies in what Castells (2004b) terms as the network society, which is a confluence of a variety of different paradigms in a multimedia, and multi-modal, networked system. The network society differs from the information society and knowledge society in its organization. The network society is a multidimensional structure where linkages are related to each other via a series of nodal and switches. The learning paradigms of the network society also invariably operate in a similar fashion. This will be discussed later in this chapter.

2.5 Higher education in the knowledge society

As discussed in the preceding section, the contemporary society is a changing one. We have seen that the transition that is taking place within our society. Here we will examine how much of an impact that very transition has on the development of what is higher education, and how the solutions have on the direction of the evolution of the teaching and learning paradigms.

The transition to a knowledge society has directly influenced changes occurring in higher education. Higher education in Australia has traditionally been governed and supported by the state. In the old economy, the continued operation of most institutions of higher education was only due to the available benefits and resources afforded by that relationship to the state.

Institutions of higher learning (IHLs) are by nature, resource intensive enterprises. They have been in most cases founded with direct government investment. The continued reliance on governmental funding for a substantial proportion of their incomes (see Fig. 2.2) creates a need amongst IHLs to develop specific capabilities because of government demands that they establish key competencies in identified areas.

Universities have typically been established along the lines of the tradition set in their formative years. It is also through these traditions that fixed practices and structural inflexibilities result.

Such inflexibilities are often the result of tried and tested practices that functioned well under specific regimes (Smith et al., 2000). Although universities' traditions have their own individual qualities, the danger of inflexibilities resulting from an over reliance and adherence to traditions is a concern. Institutions with longer histories are often those that were developed with public monies, and tend to have a higher resistance to changes to their operating doctrines. On the other hand, institutions with shorter histories are more able to adapt to changing demands of both the users and the economy (Smith et al., 2000).

Higher education faces challenges that seek to question its viability and the continued concept of what is defined as an institution of higher education is increasingly being questioned (Sharrock, 2004). Its model of operation is being redefined. As Tsichritzis (1996) highlights, the changing face of what defines as a university requires reassessment and the contemporary definition needs to be reengineered and adapted to the new environment. Higher education is at the crossroads; it needs to be able to adapt itself to the new challenges.

In the knowledge society, institutions of higher education are key sources of knowledge. In order to remain viable and competitive in this environment, education institutions need to become both innovative and profitable. With the increasing shift in state funding emphasis, the competition for the funding dollar becomes more intensive. The institutions are expected to seek alternative funding sources.

From the investment perspective, many Australian institutions of higher education are in crisis. The competition for continued funding is on the increase and the amounts that are available are, on the other hand, on the decline. In order to remain viable in this resource-tight environment,

institutions are increasingly commercializing themselves to be at the forefront of attracting and generating new private funds.

In the case of the expense statement of Australian institutions of higher education (see Fig.2.1) in 2003 (DEST,2004b), the total sum accrued to the higher education level amounted to $11.4 billion. That figure took into account the total cost of operating and maintaining all higher education institutions in Australia.

On the other hand, the total institutional revenue (Fig 2.2) on average in 2003 was figured to be $11.9 billion. Within that amount, the revenues from the programmes conducted accounted for $6.8 billion. That figure was just for the total contributions of the revenue resultant from the government funding and on top of HECS (Higher Education Contribution Scheme) fees (DEST, 2004b). This component, which made up approximately 56% of the sector's total revenue, is on the decline. Following recent reforms in federal legislation, IHLs have attempted to compensate for reduced government and HECS revenue by taking advantage of their new powers to charge students new fees on top HECS fees.

The revenue that is derived from students' fees and contributions other than HECS amounted to almost $2.6 billion. That figure itself is 22.01% of the total revenue accrued by the sector (DEST, 2004b).

What this indicates is that although there is still a profit to be generated by these institutions, that profit margin is on the decrease. This is attributed to the increased competition for the funding dollar and the need for the various institutions to plan and prepare for any shifts in the Federal Government's model.

Australian Department of Education, Science and Training Financial Indicators

(Diagrams from DEST dataset – Higher Education Finance 2003)

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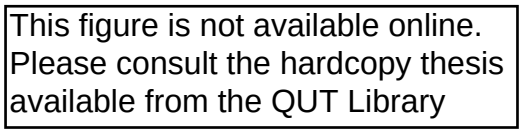

Figure 2.1: Institutional Operation Expenditure for Australian Universities Source: (DEST, 2003)

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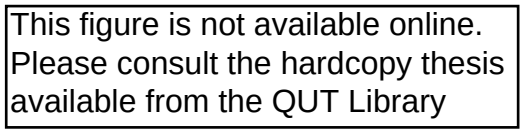

Figure 2.2: Institutional Operating Income for Australian Universities Source: (DEST, 2003)

The higher education environment in the coming years will be one of competition, where institutions embark on developing research capabilities and enrolment of fee-paying students to increase their non-governmental income. These valuing-adding functions seek to present such institutions as an attractive and valuable investment component of the new economy.

Based on the year's performance, the data reflects the changing climate that the institutions are entering. With the transformations, there are signs of a shift in the pedagogical approaches in practice within these very institutions. The data reflects the awareness of the changing environment in which institutions are expected to operate in. The focus on that changing environment had been reflected in the various symposiums conducted globally that raised this very issue of preparing for a changed learning environment since the early 1990s.

But what did these symposia result in? The calls for a change and alternative pedagogical solutions are among the more significant results. The traditional approach of the facility-based solution was found to be increasingly unfeasible; the reliance on the fixed facilities and the need for scheduling to make optimal use of the facilities resulted in a situation where the programmes were locked into a fixed and resource intensive position (Bell et al., 2002;Cecez-Kecmanovic, 2001;Denning, 1996;Falk, 2003).

However, what happens when the challenge of developing a paradigm for the knowledge society is surmounted? The transition from the information society to the knowledge society was documented by the shifts in economic and social patterns that took place during the closing years of the 21st century.

The higher education environment of today, which is in a constant flux, is itself intertwined with the transitions occurring in an increasingly globalize economy.

Australia's Education Minister Brendan Nelson acknowledges this with his insistence that the higher education environment is and will continue to undergo constant reforms (Nelson, 2003). The sector is evaluating its present position and directing its energies and resources towards the definition of what it can achieve in the environment of the future (Nelson, 2003).

2.5.1 Drivers of Change

Given that the process of transition from an information society to that of the knowledge society is precipitated by the changes that are occurring to our current economic and technological progress, it is important to understand what factors/forces have driven that change.

Within the scope higher education development, it is important to understand the very drivers behind the changes that are occurring to the environment that we are working in. All changes are in a way, a response to events that had or will occur. The responses are variables that development to account for or mediate the effects of those events.

Flew (2002) directs those responses as a driver of change. What these drivers direct to is the motivating factor to their development. In this instance, the drivers that he mentions relate to how higher education as an entity will continue to develop. These variables create the forces that influence how educational policies are defined and implemented, and how in synthesis, create the optimal mix for growth of the higher education sector.

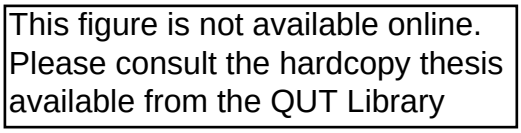

Figure 2.3: Drivers of Change
Source: (Flew, 2002)

The ten variables each (Fig 2.3) by themselves lead to transformations taking place within the environment of higher education provision and how that relates to the larger society function as a whole.

The drivers of changing learner profiles and expectations are subsets of the changes taking place as a result of the entry into the knowledge economy where, economic, employment and societal definitions are being reassessed.

The variables each direct to a specific function. Each of the variables or drivers exerts a specific pressure on the development of the higher education environment. The range of factors that comes under such forces run from local to the extra-local, local in that the effects are restricted to the immediate and the extra-local restricted to those that fall outside the limits.

Although each of the drivers exerts their own specific changes, they all have the cumulative effect of pushing the movement of the development of what defines as higher education to another level. Each of the above mentioned driver though being able to function on it own also have an extra interdependent relation with the other listed drivers in that they too are subject to changes occurring in another.

2.6 Higher education today; the myths and the reality

What is the higher education environment of today? How are the institutions of today being defined? The contemporary environment is an integrated networked system. This is a system where the different functions of learning, such as information retrieval and deposit, are established and defined as nodes. Such a system operates in a networked manner, in which the distinct nodes are linked together to establish networks upon which relationships can be developed.

The higher education system has been re-engineering itself to be adaptive to consumer expectations. One common characteristic of contemporary

Australian institutions is that they all have an integrated online access function within their course delivery approaches. Take for instance, the Queensland University of Technology's Online Learning & Teaching (OLT) system is an integrated online system which allows both staff and student access to the necessary information required for the completion of their prescribed workload. The OLT system is not just a user database management system but also a course material delivery system. It allows users to access their personal data, keep track of their enrolments and academic progress in addition to using the same service as a portal of which they can access the course materials used and supplied for the completion of their enrolled programmes.

As institutions in the knowledge society, IHLs are leading sources of knowledge, which itself is a leading source of external income that such institutions are increasingly reliant on. The institutions, however, are also realigning their structures to adapt and attune themselves to the prevailing expectations of their perceived markets. Because of this, today's higher education institutions are hybrids of various emerging, current and preceding technologies combined into a coherent form. That form takes shape in the learning approach described as the flexible delivery model. One only has to take a look at the programme outlines of institutions such as that of the Queensland University of Technology and Griffith University to have an understanding of the actual changes.

Most Australian IHLs are presently practising a flexible delivery model that is essentially an adaptive solution founded in the objective of providing pseudo 24-7 accessibility to course information and course -related content to enrolled students. The flexible model presents a dynamic solution to the current requirement of institutions with regard to the positioning of their products to the prospective student market. Such students, both in Australia and other western countries, "have grown up with the expectation of staying connected to a customer focused, instant, 24-hour, 7-day week service" (Ramsden, 2003,p.4).

The learning environment today is centred on the concepts of value, accessibility, timeliness and relevance (Monkman and Baird, 2002). Education in this knowledge society is one that is based on a number of key critical values that determine the popularity and value of the specific programme. Learning in the digital era places great emphasis on being integrated in a networked environment such as that offered by the Internet. Access to the required knowledge is through a series of nodes and linkages that reduces the physical and temporal relative space between the various users, be they students or teachers.

Bates (2004) discussed how transitions in the learning environment have led to a global trend towards alternative delivery provisions in higher education. Higher education today epitomizes the lessons learnt in the development of learning pedagogies. Contemporary teaching pedagogies involve the application of a variety of different approaches.

These approaches are described by Laurillard (2002a) as being fundamental to the delivery of proper teaching and learning practices. Laudrillard's work thus highlights the importance of how the development of technology intermeshes with that of pedagogical studies.

As has been discussed previously, higher education today offers a diversified basket of products. These products are similar in objectives but they approach those objectives in different ways. This occurs because the consumer environment in the knowledge society is one of wants; it is one where the consumer demands access to goods and services; it is one where both access and the ability to create new knowledge directly results in the generation of wealth (The World Bank, 2003).

To remain as a participant who can maintain currency in a constantly changing economic market, both as a consumer and user, the individual will find him or herself in a constant cycle of reassessment and readjustment. As Felton (2003) puts it, knowledge is the capital of this new society, and

knowledge can generate results both directly and through the multiplier effects of its complementary investments.

Institutions understand this changing environment, which is the reason why so many different learning options exist and are available to the consumer. This reality ties in with the conceptual birth of a lifelong education. Lifelong education is a learning paradigm that presents learning as being not just a process that takes place within specific phases of an individual's lifetime. The lifelong learning approach proposes that the learning be restructured in that it takes place over the whole period of that lifetime. The discussion of how lifelong learning figures in this thesis will be addressed later.

Before we examine how lifelong learning fits into the environment of a knowledge society, we need to reconsider how this environment is based on the application of knowledge to sustain a wealth creation cycle.

We have seen in recent years that the marketing of higher education has stimulated the transition of IHLs from the traditional campus based models (Bates, 2004) to that of:

1. e-learning supplementaries found in most institutions in the form of a flexible delivery package,

2. dual modes institutions (Geissinger, 2001) like that of the Royal Melbourne Institute of Technology (RMIT), and the University of South Africa (UNISA), which offer both campus-based and distance education and,

3. commercial institutions like QANTM and the School of Audio Engineering (SAE), and,

4. Consortia like Universitas 21, which brings together a grouping of established institutions, each with their own specializations in a grouping,

5. Distance education in the form of the Open University and Corporate Training.

With an emphasis on accessibility, these alternative approaches make significant use of technology.

Institutions today are increasingly competitive. As highlighted earlier, they are in the market for the student and research dollar. With the gradual movement of governments to reduce their contributions to the budgets of the institutions, the need to source for alternative funding is a real and pressing reality.

In addition, with increased globalisation and the removal of both physical and virtual barriers, institutions that once enjoyed a protected market are now being exposed to external competition (Monkman and Baird, 2002). In addition, institutions find themselves either in or entering a market where the products offered are very similar with almost little or no differentiation aside from the perceived quality of the product being offered by virtue of its institutional branding and location (Monkman and Baird, 2002). These marketing advantages are subject to changes in the evolving society.

Aside from having to market a product in a saturated market, institutions are also faced with the task of ensuring that their products are of value (Laurillard, 2002b). Given the pace at which both society and technology are evolving, the value of a higher education is subject to regular questions.

2.6.1. Value adding

The question remains, how is the provision of higher education to maintain that quality advantage? The environment in the knowledge society is competitive. It is filled with education products that are designed to fulfil the maximum wants of the prospective consumer. The higher education product in the knowledge society is a commercial good, which users obtain and apply in their quest for a better lifestyle.

The traditional higher education degree has generally been in the form of a parchment or transcript that the individual has met and passed all the required levels of academic examinations set for the specific area of study. The qualification then allows the holder to enter the industry at a level commensurate with the level of academic standing the degree was awarded for.

In the knowledge society, however, the validity of that practice is put to question. The merits of a higher education are being revaluated. The level of knowledge that was once only accessible through the university portal is now easily available at the click of a button, through an Internet access point. The Internet is the great equaliser; it does not differentiate between users and their respective backgrounds, be it academic, professional and cultural.

However, university education is not just about the passing of subjects. It is the acquisition of cognitive skills through the interactive social and academic networks available only through a university. The higher education degree is the sum of that experience. It allows for the development of the individual in an environment that aims to foster their specific strengths. A focus on the needs of individuals does not subtract from the greater common good but serves to foster and enable the learning experience through a better use of resources through the application of specialised skill sets in problematic situations (Hodgson, 1999). In the knowledge society, an emphasis on individuality is the key to establishing the ideal educational product. Traditionally, the various programmes offered were designed for the mass audience. This approach offered the best allocation of resources available to the institution and suited the enrolled student well. The student could access the required knowledge from a singular fixed nexus, such as a face-to-face class in a lecture theatre or a block of readings in the campus library. That practice was the dominant approach in the pre-Internet period. With the wide-scale uptake of advanced communications technology and with that the Internet and its related technologies, the focus on a singular access point began to diminish.

With the linkages afforded by the Internet, the emergence of the multi nodal approach began to take root. The nodal model proposed by Castells (2004b) describes the current scenario, where users can access the required information through a network of interlinked databases, removing the need for a physical presence at a fixed location. This virtual presence allows learning and knowledge acquisition to take place in a location and time dynamic environment. The fact that most Australian IHLs are in the process of or have already established such scenarios in their organizational framework is a sign of how quickly an alternative to the traditional form is being adopted.

Learning in this environment will be different to that in earlier models. Instead of an academic centric approach, a more practical oriented approach is shaped. In the knowledge society, timing is a critical factor. Events and decisions occur at a faster rate with the convergence of technology-mediated communications. IHLs need to be responsive to such issues of time. Governments are participating in relation to this issue as the resultant changes influence the development of the national economy (Kodrzycki, 2002). The importance of the education sector in the development of the future economies is an issue that is on many governments' agendas with a key objectives being to implement the proper strategies and objectives now that will shape a prosperous future.

2.6.2. The Myth of new media

The learning environment in the knowledge society is an evolving system, where practices are interlinked with the development of technology. New approaches are continually being developed and refined in a cycle where existing practices are constantly being updated.

New media technologies have been central to the shift in learning. What is new media? In the context of contemporary systems, new media encompasses a whole gamut of concepts and technologies (Flew, 2002, p.9 - 10). For the purpose of the paper, the terminology is used with

technologies and applications derived from the use of the Internet medium, particularly in the transition from an analogue frame of reference to that of the digital realm.

New media are defined as technology led communicative mediums that are intangible, can be both physical and virtual, do not have constraints, and are not bounded by space or time. New media are accessible and adaptable, and can act as an enabler. In other words, new media can act as a bridge that creates and enables access to the knowledge resident in the knowledge society. New media can enable users of different socio-economic backgrounds to access the same set of knowledge through an integrated learning environment (Lievrouw and Livingstone, 2002) where there is a social impact to the transformation.

Laurillard (2002b) points out that creating a reflexive practicum and learning environment would require the exploitation of communicative technologies, i.e. new media, to transform learning in the digital age. New media figures prominently as it is perceived as the conduit where contemporary changes are using to effect their change. Flew (2004) gives an example of this by pointing to the increasing popularity of the use of new media as teaching and learning tools in the burgeoning number of generic media degrees in Australia.

However it is important not to suffer from the tunnel vision syndrome by becoming too obsessed with the anticipated benefits of technology. Technology is only a means to an end: “Technology by itself is not a solution to any development problem; it only provides an opportunity ...”(Pohjola, 2002,p.380)

New media and higher education belongs to an increasingly convergent relationship (Cunningham et al., 1998), which involves the increasing use of either application to further the development of the other. The landmark ‘New media and Borderless Education’ study finds that the convergence between the two will impact on the systems of administrative operation and

the redefinition of accepted fundamentals of what defines higher education in the coming years (Cunningham et al., 1998).

Despite the advantages that new media supposedly offers, it is important to understand that such media are not a miracle cure for all of the education industry's problems. New media as a tool can only be prescribed as a interim solution to the issues that afflict the industry and as such can only have at interim result until the next technological innovation comes into play.

2.7 Higher education tomorrow

The future environment for higher education will be based on a combination of various paradigms. In the words of Castells (2004b), it will be a society, that is based on the key concepts of structure, dimensions and dynamics. Described as the network society, it will be the next stage in societal evolution.

The network society integrates the elements of technology and applications in a user-producer cycle. Structure is where the foundation is based on globalized network. Dimension is where spatial and chronological factors are no longer barriers to the transmission and reception of information. Dynamics is where flexibility and fluidity are the norm (Castells, 2004b,p.4-5).

Networks are increasingly becoming the dominant form of organization and create the environment for further interactions. In that environment, the definition of learning seeks a re-examination. In an increasingly convergent society, the means of differentiation becomes increasingly narrow. As Stiglitz notes: "It is not easy to change how things are done…. people fall into bad habits, and adapting to change can be painful." (Stiglitz, 2002,p.252)

Although contextually Stiglitz directs that remark towards change in the ways of the bureaucracy in a globalized society, his observation is also

relevant when considering the reform necessary for transforming technology use in higher education so as to prepare the sector for the challenges ahead.

Changing the mindset and behaviour of teachers and learners will be a difficult challenge. Reforms are required in almost every aspect of our existing infrastructure (Bentivegna, 2002). This reform process will require investment in resources, both financial and time wise.

That reform process will only be delivered through the engagement of all relevant and interested parties. The higher education framework in which tertiary institutions will function will have to become more adaptive, resilient, and conformal yet unique. It will be a consumer driven environment, as Leadbeater (1997) expresses it, a society where ownership changes hands. In such a system, power is transferred to the consumer and authority changes from the traditional seat to the disenfranchised masses.

2.8 Policy making for higher education tomorrow

Policy making will be important for the way that it influences the actions taken in the implementation of specific practices. In order to have a realistic and effective plan for developing a well-managed higher education environment, it is important to define the environment that is being sought after. Coaldrake, Steadman and Little (2003) are among those who have posed the questions: What will the higher education environment be like and encompass? In this regard, how will new media be used as a means to an end within this process?

Policy making is a complex process that has to account and accommodate for the projected needs of the society of tomorrow of the future economy. There is global evidence of that in the push to encourage IHLs to embrace a lifelong learning mentality through studies commissioned by organizations (Asian Development Bank, 2001;International Labour Organization,

2000;The World Bank, 2003) and governments (Kuruvilla et al., 2002;Saywell and Plott, 2002;Watson, 2003) worldwide.

As was briefly mentioned previously, the lifelong learning paradigm is where the individual is to constantly undergo skill upgrades or re-evaluation of his/her professional behaviours and environment in order to maintain his or her professional currency. Lifelong learning requires the individuals to alter their lifestyle and behaviour to accommodate that need for the required skill or behavioural development (Watson, 2003).

New media and the right policies will be the instruments that will enable that transition to take place. Information Technology will aid the transition through the creation of the ideal environment and the development of the proper skill-sets and tools to survive in that environment.

The challenge ahead lies in how institutions realign and redefine themselves (Sharrock, 2004). They need to articulate their objectives and job scope and identify a position in the future society where they can establish themselves and flourish.

There is an increasing convergence between technologies and how IHLs develop. With the transition and integration of technology into the institutional frameworks, the impact will be seen in terms of a direct influence on the institutions' output. Almost all Australian IHLs offer a technology–mediated-learning environment, but how these environments operate relates to how the institutional policies have been established and developed (Weller, 2001). It will be an exciting journey to observe how the different institutions define their specific directions and policies, and how they will evolve and compete in the future.

2.9 Summary

The future learning environment will be multi-disciplinary. Learning will be integrated with technology. Information technology and new media will be

the backbone of that movement. As was highlighted in the previous sections, the environment will be highly competitive and volatile in nature. The question however remains as to how to effectively plan and implement future policies to account for this environment.

As policy development goes, any structural changes could have ramifications by changing supplier and consumer behaviour, thus influencing the developmental path of the medium.

Policy is a political process and education policy is likewise equally politicized. The policies developed and implemented affect the concept of societal identity. Castells (2004a) alludes to that possibility, where the concept of identity is challenged in the evolving knowledge society.

The emerging IHL system will be dynamic and user-focused. It will feature an integrated collaborative environment where communication and learning takes place. The embrace of the lifelong learning concept is one such adaptation.

The development of programmes and practices that are only designed to meet the changing environment are at best stop gap measures as they will not significantly affect the evolution and transitional forces. The only way to accommodate the movement towards the knowledge society will be through the complete redefinition of what serves as higher education and how it is delivered to its clients. This thesis thus seeks to investigate how 3 Australian institutions strive to achieve this through its LMS.

CHAPTER 3

3. Methodology

Chapter 3 outlines the methodology used for collection and analysis of the data used in the study. This chapter will cover the process used with regards to the development of the data collection methodology and the ethical considerations applied during the course of it.

3.1 Overview

This chapter will outline the approaches adopted for the study. Its objective is to present the various methodological decisions made in the course of collecting the data used in:

a. The Research Design,
b. The Research Process,
c. The analysis of the collated survey data in Chapter 5 and 6, and
d. The comparative case study in Chapter 4.

The chapter will use the following structure where applicable in the abstraction of the methodological design and process of the study:

- Methodology
- Process

Section 3.3 will provide the theoretical background underpinning the identification and selection of the various devices used to collect the data in the study. Sections 3.4 to 3.10 will describe how the data sources were identified and collected, which will lead to an analysis of the methodological process applied.

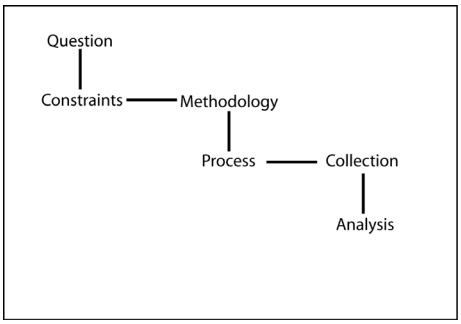

Figure 3.1: Stages of Studies

3.2 Data collection framework

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Figure 3.2: Data Collection Framework
Source: (Maxwell and Loomis, 2003)

The thesis examines the relationship that exists between the uses of alternative learning approaches and the use of new media technologies within technology-oriented learning environments. This chapter will outline and articulate the strategy adopted in the collection of the data used for the articulation of that question.

Using Maxwell and Loomis's (2003) model of a multi-modal approach to research design, it was decided that the study would use both quantitative

and qualitative parameters. This allowed for a refined and balanced coverage into the collection for the study.

3.3 Research design

The typical epistemological model used in these studies is often a quantitative/qualitative hybrid. As indicated by Flew (2002), the development of higher education hinges on the function of a variety of independent variables. Research into that relationship requires an interpretative design that can accommodate and account for all those variables.

It became evident that the objectives of the research question had elements of both quantitative and qualitative enquiry. The normative approach of basing and validating the question on a singular paradigm was inadequate. A single method approach (i.e. a purely quantitative or qualitative approach) to the development and validation of the question would result in an inconclusive return as it would only reflect a single aspect of the research question.

Flexible learning within the context of its use in higher education has always been an issue that has its roots in a variety of disciplines (Katz and Oblinger, 2000). To understand its evolution would then require a model that allows for that variety.

This thesis will use the mixed-methods approach, depicted in Fig 3.2. Proposed by Maxwell and Loomis (2003), it simplifies in a interactive form the relationship that establish the basic foundation upon which the study can be based. In an extended version, the mixed model is an abstraction of that initial design.

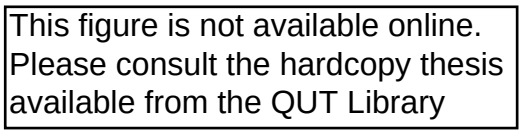

Figure 3.3: Interactive Model of Research Design
Source: (Maxwell and Loomis, 2003)

Applied contextually, the interactive multi-method model allows for the application of the variables located in the study.

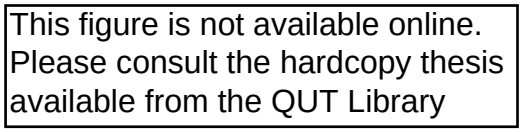

Figure 3.4: Applied Research Design
Source: (Maxwell and Loomis, 2003)

The variables studied in this thesis are not independent elements but are items that are dynamically interlinked. Changes that occur in a single variable will result in a likewise change in another, creating a cascading effect.

The approach towards the final design was derived through the application of the interactive model. To define the desired objectives and validate them, the application of a multi method framework was essential.

Using Grounded Theory (Strauss and Corbin, 1994) as an reference methodology, the study was then directed to obtain the required information. This was further developed through the application of traditional epistemologies, which resulted in the above framework outlined in Fig. 3.4. Grounded Theory being the development of a theory or argument through a process of data collection, coding, revealing the theory hidden in the data available.

Applying a triangulation methodology (Creswell, 2002), the results were then further analysed using mixed model study (Tashakkori and Teddlie, 2003) which had similar characteristics as a benchmark.

This methodology however has to be applied contextually to the specific requirements of the study. Within any design component, there are always two different elements to its makeup; that of it being quantitative or qualitative (Maxwell and Loomis, 2003).

This meant that the identified components to be used in the study, had to be further refined for the nature of the data that would result. The distinction between components with quantitative and qualitative characteristics affects the relationship and style of which the methodologies will be compared.

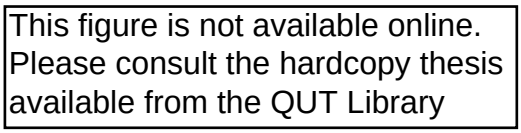

Figure 3.5: Data Collection Matrix
Source: (Johnson and Turner, 2003)

The above matrix (Fig 3.5) (Johnson and Turner, 2003) was also adapted in the selection of the various collection devices used through this study. What Johnson and Turners pointed out is that the selection of any collection method is defined as collected data which can be categorized either as a pure qualitative approach, a pure quantitative approach or a mixed approach.

The above matrix was adapted in the design of the various instruments used for the collection of the respective data sets. During the course of the definition phase of the process, it was observed that a significant amount of the collected data fell within the mixed category as the information collected reflected the qualitative and quantitative nature of the issue. This was also made under the assumption that having a specific response group was needed for the collection of a data set of sufficient size so as to derive a valid analysis. The assumption was based on the enrolment numbers of the respective programmes involved in the study, which then resulted in the identification of the minimum response size so as to ensure the target was achieved.

The next stage of the research design was then to identify the data collection and validation instruments and processes.

3.4 Research process

The research into the impact that the flexible delivery approach has on how multimedia programmes are developed and conducted arises from my previous experiences in the conduct of multimedia programmes while working as a lecturer back in Singapore. The study is of interest in that it examines the relationship between the demands of providing the desired learning outcomes at a manner that represents the institutional ability to deliver it.

My initial aim was to develop a comparative international study of how flexible delivery was being defined and integrated into existing institutional structures in both Singapore and Australia. An initial query was directed to the Singapore Ministry of Education but it received an unfavourable response. With that, I decided to confine the comparative study to selected institutions in Queensland, Australia. As will be discussed further below, the research focus was narrowed to three institutions that acted as case studied – Griffith University, the Queensland University of Technology and QANTM.

There have been studies about reforms in higher education and the need for the institutions to review and realign their existing pedagogical paradigms (El-Khawas, 2001;Harman et al., 1988.;Tsichritzis, 1996), and how these changes should reflect the changing environment which the institutions are entering and need to accept in order to continue growing (Denning, 1996;Monkman and Baird, 2002). Lifelong education has also been studied extensively and is significant to this thesis as it is an important element in creating the environment which the new pedagogies were expected to cater for (Mckenzie and Wurzburg, 1998;OECD, 1996).

During the course of developing the initial design, the problems in recruiting the desired participants and the actual coverage of the study manifested in a number of limitations in how the study could be proceeded upon. The limitations in this case were mainly attributed to costs and coverage. Due

to the limitations encountered, the methodology adopted (see Figure 3.1) was combined with observation fieldwork, documentation analysis, unstructured interviews and an online survey. The observation fieldwork comprised onsite observation of how specific courses and programmes were designed in selected institutions. In addition to that, unstructured interviews were conducted with students and staff of the selected institutions so as to gather the desired data. The documentation analysis comprised mainly the examination of archival documents pertaining to the institutional development and adoption of specific policies aimed towards the integration of a flexible delivery capability institution wide. The rest of section 3.4 will briefly outline these activities as a precursor to a more detailed discussion in the rest of this chapter.

The survey was initially designed for delivery to the respondents via a face-to-face survey session with invited potential respondents. However, with the limited resources available for the study, that option was soon discarded for a more viable option of having an online survey. This option also allowed for the capture of a wider group of respondents.

With the original approach, there was a limitation both in terms of time and space. This was due to the physical distances that existed between the institutions and the need to set deadline by which respondents would be able to access and complete the survey. Such factors limited the accessibility of the participants.

What was finally decided upon was the use of a commercial online survey instrument as the means of delivering the completed survey to the respondents. That service www.surveymonkey.com is a subscriber service that allows for the required flexibility and functionality within the set specifications.

Once the delivery medium issue was resolved, the next issue was in the way that the questionnaire design was shaped by the need to acquire data that reflected both the quantitative and qualitative information required for

an objective interpretation. That design was itself based on the established approach used in the mixed methods established by Maxwell and Loomis (2003) and applied contextually for this study.

The survey that was delivered online was designed to gather data that reflected the respective demographical, institutional and user expectation data set of each respondent. That completed survey was then attached to an email to the respective programme heads of the selected response groups for dissemination to the target student groups.

A critical examination of archival and current documentation of policies and institutional plans was also undertaken. The main sources of information for this stage were from the online resources available from the Internet sites of both Griffith University and the Queensland University of Technology. Both selected institutions maintain an extensive collection of policy and planning documentation about their existing and projected institutional developmental plans.

In addition to the above, interviews were undertaken with staff members from the various institutions. The objective behind those interviews was to obtain information from the user perspective that would develop the qualitative aspect of the study. The data that was collected allowed for a clearer analysis of the subject than was possible through document analysis alone.

A final aspect of the research was the inclusion of the institutional case studies. These cases studies of the institutions' historical and projected policies would be used to establish the respective institutional approaches in the adoption and integration of the flexible delivery policies. The specific paradigm used here was based on that established by Yin (2003) with regard to case study research. The case studies also examined the institutional response towards the various federal government policy recommendations set out in the Dawkins (1987) and Nelson (2003) papers.

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Table 3.1: Data Sources
Source: (Yin, 2003)

All data collected was subject to QUT's ethical clearance requirements and all participants in the study were required to complete a release form indicating their knowledge of the study's objectives and their role in it.

3.5 Survey of flexible delivery in multimedia programmes in selected Institutions of Higher Education (IHLs) in Queensland, Australia.

3.5.1 Selection design methodology

Surveys are a useful research instrument because they can be designed and conducted to collect data in different ways to produce different kinds of research outcomes (Vaus, 1995).

Using the Mixed Model paradigm, the use of the survey was one of the various instruments used for the validation of the research question.

The objective of the survey was to obtain a data set that reflected the quantitative and qualitative variable of the issue.

Vaus (1995) identified that while a survey can be designed for specific purpose, the data that results can be of differing nature, dependent on how and in what context is it analysed under.

In order to study the integration of alternative pedagogies into the institutional practice of contemporary education providers, a survey was conducted to gather data pertaining to the user demographics of students enrolled in undergraduate level programmes in multimedia development.

This was designed so that the relationship between conceptual methodology and actual implementation can be established, resulting in a synthesized model that reflects on the typology of the study.

3.5.2 Survey process

Survey design is an activity that correlates with the type of data being sought. As Vaus (1995) indicates, its attributes are dependent on the variables that research aims to study. Marsh (1982) similarly argues that the decisions to conduct a survey, and to design it in one way or another,

are subject to and circumscribed by the type of activity that the survey is exploring. The choice to include a survey as a component of the multi-modal design of my research was motivated by the context and environment in which the research is conducted.

Only students who were enrolled at three targeted Queensland IHLs were invited to participate in the survey, so that it would only focus on current users of the studied systems. The respondents came from the following institutions and programmes:

- **Griffith University**
  Enrolled students in the Bachelor of Multimedia
- **Queensland University of Technology**
  Enrolled students in the Bachelor of Creative Industries
- **QANTM**
  Enrolled students in the Bachelor of Applied Multimedia

There was no specific restriction on the year or level at which the students had to be enrolled in order to respond. This was to ensure that the data collected had sufficient scope and coverage.

The survey was originally intended to establish the relationship between how institutions in Australia compared against those of foreign institutions. Because of this, a section was developed to establish the nationality of the respondents and, questions on the respondents' personal perspective were established within that section.

The survey was distributed to potential students' participants via proxy in the form of the various course coordinators of multimedia programmes/courses in the three respective institutions studied. The coordinators were sent an email containing a hyperlink that directed the respondent to the server address at which the survey had been uploaded.

3.5.3 Selection of survey instrument delivery service

The decision to subscribe to an online survey service was made after an examination of the process of developing and hosting the delivery system on a university server. This examination identified the various technologies required for developing the appropriate capabilities, as well as the programming and design skills required to present that capability to the identified respondents. Although I had had the experience of developing such a web resource, it was not possible for me to develop an online survey site due to time and resource constraints. The commercial approach was adopted due to the benefits and capabilities afforded by that path, for it allowed me to:

I. Create the survey,
II. Collect the data,
III. Manage the administration of the survey (open/closed),
IV. Generate reports of the closed survey,
V. Have an instruction guide or manual available to respondents.

Consideration was given to the adoption and acquisition of either a commercial off the shelf (COTS) stand-alone system or to subscribe to a customisable web-based survey tool. The final decision to employ a web-based solution was influenced by the wider reach of the web based delivery option.

Most of the studied providers allowed for a trial use of their services in order to allow prospective users to experience and determine its suitability for their specific requirements. A trial survey with limited question sets was developed through the subscribed services. That survey was opened to a selected test group, who provided the necessary feedback for the selection of the best service provider within the set parameters. Such trial services were often limited in relation to the number of questions that could be asked, but they provided a point of reference for making the selection. The

selection process was finalized, and Surveymonkey was chosen as the online provider, by using the criteria as laid out below:

I. Accessibility
II Security
III. Ease of navigation
IV. Extensibility

I. Accessibility

The need for the survey instrument to be accessible to the targeted student cohorts was an important consideration. The need for the selected service to be capable of customization was also an important criterion. In many cases, the complexities associated with developing a customized web-based delivery medium would mean that the end result could be complex and difficult for users to download. The architecture of the selected web based service overcame this by creating a unique resource address from which all the survey contents could be easily accessed.

The design interface allowed the option for the subscriber to generate a link that could be easily attached to an email. As I have mentioned previously, the link allowed respondents easy access to the complete survey site resident on the online service provider's servers. Once the respondents had activated the hyperlink within the email, they were transferred seamlessly to the targeted destination.

3.11 Security

Security was another factor considered in the selection of the online service provider. The respondent was not given the opportunity to provide his/her response to the survey question more than one time. The rationale for that decision was to maintain the objectivity and accuracy of the survey data. This was to prevent a situation where there is an instance of multiple and error reporting of the survey data.

Concerns about tampering, or data being corrupted by malicious means played in the selection of Surveymonkey. The level of security built into the service was sufficiently robust. It was protected by a username and password access. In addition to that, as the site address was one that was automatically generated by the service, only invited users would have access to it. This was in turn controlled by the selective groups that the address was released to and also by the specific site open for a predetermined period.

3.12 Ease of navigation

On the basis of prior experience in developing web-based applications, I knew that it was important that the site be designed so that it was easy to navigate. The selected internet provided offered an interface design that could be easily navigated and learnt so as to minimize the lead time required for understanding the mechanics of how the selected system functioned.

IV. Extensibility

The ability to export and import reports of the survey results into applications like Microsoft Excel, Access and SPSS was a required functionality. In order to be able to analyse the collected data, the data had to be formatted in a data type that was compliant with the acceptable

standards required by the above stated applications. Surveymonkey allowed the subscriber to select from four different format types to export the collected data into:

Entire Result Set

- Spreadsheet Format
- Relational Database

Summary Set

- Spreadsheet
- HTML

The option to select from the variety of export formats allowed for flexibility in using a variety of different applications to analyse the collected results.

3.6 Questionnaire design

3.6.1 Questionnaire design methodology

Using the data Collection Matrix that was discussed earlier, the identified function of the use of the questionnaire was to contribute a collection of data on the perspectives of users of flexible delivered teaching materials. The questions themselves were designed to establish and quantify the level of user expectations with respect to the institution's move towards the implementation of alternative pedagogies.

The use of questionnaires as a research instrument has its roots in the construct of the data collection continuum (Johnson and Turner, 2003). Johnson and Turner identified three specific types of questionnaires, as is summarized in Figure 3.6. These three types each have their own specific paradigm with regards to the way that the line of questioning and its design is handled.

Figure 3.6: Questionnaire Type
Source: (Johnson and Turner, 2003)

In my research, the questions conformed to the Type II category. Vaus (1995) notes that the nature of the questions should be dictated by the functions and objectives of the research. Type II questions were considered the best form for obtaining quantitative and qualitative results.

3.6.2 Questionnaire design process

The specific questions to be asked in the questionnaire were influenced by the use of the internet as the primary vehicle for delivering the survey to respondents. Recognising the constraints inherent in the vehicle, I adapted the approach that was used by Swartz et al. (2003) in their study on the methodology of a multi-site study. Questions were also based on Rowley's (2003) recommendations about establishing the premises and objectives of the design. These recommendations relate to the consideration of the following issues:

I. Objectivity

II. Applicability

III. Relevance

IV. Timeliness

V. Accountability

I. Objectivity

Surveys have to be designed in such a way in that they do not present themselves as a partisan questionnaire of the user' opinions., it has been observed that the questionnaire design and format can often indirectly guide the respondent to answer the questionnaire in a pre-determined manner. Care must be taken in the design and wording of the questions to avoid leading the respondents on unnecessarily.

II. Applicability

The questions that are asked should be applicable to the specific conditions that the respondents reside. Questions that deviate from that position should be avoided as they will result both in confusion to the respondent with respect to its applicability and also result in the collection of data that does not relate to the subject matter.

III. Relevance

The design and line of questioning must be relevant to the research subject matter and objectives. Questions that deviate from that subject matter will lead to confusion and erroneous data being collected.

IV. Timeliness

The design of the survey must reflect the timeliness of the subject matter. The questions should relate to reflect the style and period of the subject matter. Questions that do not abide by that requirement could result in the respondent becoming confused and either skipping the questions or providing answers that are not acceptable within the parameters of the subject matter.

V. Accountability

The questionnaire must assure the respondents that the researcher will act accountably, and that all respondents' personal information will only be used for the explicit purpose of academic research and that no commercial use will be made use of it. The questionnaire design must also provide links and references for respondents to contact the researcher or to verify issues encountered during the participation in the survey itself.

After Rowley's recommendations were taken into account, NPowerNY's Online Survey Tools (2004) were used as a guide for designing the questionnaire's layout.

3.7 Survey size and respondent groups

The initial projected response to the online survey was targeted at 10 respondents from each selected institution. It was thus expected a nominal response group of 30 would represent a satisfactory sampling size of the targeted surveyed population. However, when the survey was closed for the collection of the completed surveys, the response was an encouraging 60 participants.

The respondent groups were then compartmentalized into their respective institutions. This allowed for an early analysis of the basic demographical breakdown of the enrolled students from the respective institutions of Griffith University, the Queensland University of Technology and QANTM.

Institution	Response	
	N	%
Griffith University	24	40%
Queensland University of Technology	20	33.3%
QANTM	16	26.7%
Total Respondents:	60	100%

Table 3.2: Respondent Size

The demographics of the respondents reflected the diversity of where the respondents were expected to be coming from. The details of that collected data will be reported and analysed in the next chapter.

3.8 Observation

3.8.1 *Observation design methodology*

The use of observation as a data collection device is a process that has been used by many researchers to study the relationship that exists within a specific environment. Observation can either be participative or non-participative in nature. Observation is often used as a component of a larger process of data collection within a contextual environment. Such activity is described to by Rallis & Rossman (2003), who delineate the process taken.

It is important to note, however, that observation is highly subjective because the observed party may engage in unnatural behaviour in response to the researcher's presence in the environment. This is where the party acts in a certain way of his/her consciousness of the researcher being an audience. Other limitations and strengths of observation, as described in Johnson and Turner, are summarized in matrix format in Figures 3.7 and 3.8. Such factors determine the depth and order of the results of the collected data.

What Goffman (1959) refers as the frontstage behaviour in context to its limitations. This is when the respondent provides results that are inaccurate due to attempts by the respondent to impress the researcher.

Figure 3.7: Strengths of Observation Method
Source: (Johnson and Turner, 2003)

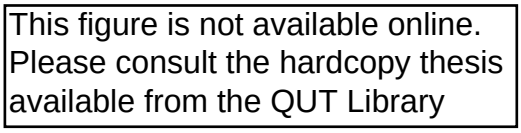


Figure 3.8: Weaknesses of Observation Method
Source: (Johnson and Turner, 2003)

Observation as a process can produce data that belongs to three distinct categories, that of being Quantitative, Qualitative or Mixed in its characteristics, following the matrix set out earlier in Figure 3.5.

3.8.2 Observation process

This phase of the research involved an observation of the operations of QANTM and, to a lesser degree, of the Queensland University of Technology's Creative Industries Faculty's Communication Design Department.

The observation study with QANTM was conducted under the auspices of a workplace-learning programme. This study took course over a span of two months from June 2004 to August 2004. During that period, as part of the programme, I was positioned as an observer who examined the operation of the daily operations of a private school. Under study was the conduct and delivery of the Bachelor of Applied Multimedia programme in particular. A study of the various teaching modules was initiated, and interviews were conducted to obtain the individual perspectives of the staff and students there.

The observation in QUT's Communication Design was achieved as part of my position as a casual staff member, where I was able to observe and study the operations of how the department functioned. Of particular use

was my role in developing resources for delivery through the QUT Online Learning & Teaching (OLT) system. OLT is an intranet resource that is used by academic staff to deliver resources such as study guide, lecture notes and course readers to students and/or to engage students in interactive activities, such as forums and discussion groups. First-hand experience in developing materials as well as engaging and submitting them for student access via the OLT system, has allowed for a better understanding of the mechanics of how the OLT system functioned in relation to the user expectations and environment.

3.9 Documentation review

Another data collection strategy used in the study was the examination and analysis of institutional documentations. These documentations, both recent publications and archived material allowed for an exploration of the specific decision and policy making processes that caused the institutional changes, as evidenced by the changes in delivery methodologies.

In addition to the access of publications available through the university archival officers, significant use was made of the universities' online policy repositories. These access points provided a wealth of current policy documents that allowed for the study of the strategic directions that the institutions were directed to.

3.10 Interviews

3.10.1 Interview design methodology

The use of interviews as a data collection device is a methodology prescribed when clarification of detail is required (Johnson and Turner, 2003). Interviews allow for the respondent to be asked for a clearer and defined response to a specific question.

In common with other research approaches adopted for this thesis, interviews can be used for quantitative, qualitative or mixed-method research. For my study, the interviews conducted were designed and delivered using an informal conversational approach. The unstructured nature of the approach creates the necessary dynamics to obtain the information required to define the context of study of the other elements. It thus supported the dual quantitative-qualitative nature of my other research activities.

3.10.2 Interview process

While the collection of data via the examination of published and archival documentation provided a rich source of information, it only provided a quantitative data set. However, as the study also involved understanding the response towards the implementation of the alternative pedagogies, there was a need to collect data that reflected the qualitative aspect of the question.

The interviews were conducted over a period of six months. Members from the institutions listed in Figure 3.9 were identified and interviewed for the purpose of collecting qualitative data:

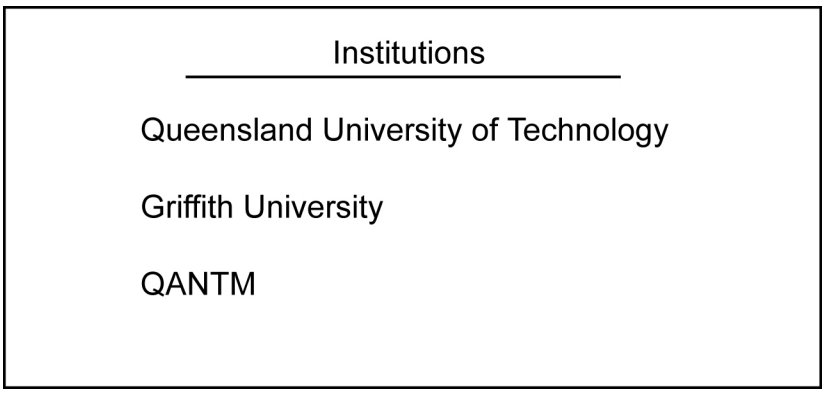


Figure 3.9: Participating Institutions

The transcribed interviews proved to be a valuable resource in the development of the formative framework for the thesis. This was because it allowed for the user perspective to be integrated into the study.

The use of interviews can have its demerits as a methodology. For example, an interviewee's answer may be influenced by his/her perceived expectation of what the interviewer wants. There are also concerns that interviews may not be as effective as other research methodologies for similar reasons. However, in terms of the depth of knowledge acquired through this interview approach, the amount that can be obtained can still be significant.

3.11 Analysis

The data collected through the survey was analysed through the use of the exported information set and comparisons of how the different respondents answered to the questions found within the questionnaire.

Analysis of the collected data was achieved by making use of the relational database that the data was retrieved in the collected survey results, In addition, the data was also exported in a spreadsheet format that allowed for the comparison of respondents' answers. Data obtained through the survey was compared and contrasted with that obtained through observation, staff interviews and document reviews, which allowed for triangulation of results.

3.12 Ethics

The identified methodology for the study had to conform to the ethical regulation of my home university, QUT. This meant that the research design had to conform to the guidelines set out by the University Human Research Ethics Committee (UHREC) with regard to the ethical standards.

The study was cleared by the UHREC on ethical standards before it was released to the participating institutions. This clearance was only acquired after UHREC members had examined the survey instruments intended for use during the data collection phase of the study. To satisfy the UHREC, the survey and interviews had to comply with the following requirements:

- The results could not identify the participants
- The questions had to be of sufficient clarity
- Participants had to be given all the required information pertaining to the subject and purpose of the questionnaire
- The consent of participants was requested
- A similar method was offered for the consent to be approved
- Participants were told the subject, purpose and objective of the study and that the information acquired would only be used for academic purposes unless otherwise indicated or requested
- Avenues were provided for participants' response.

The conditions were fulfilled through a Participant Information Package (see Appendix A, Appendix B.) All the relevant documentation had to be reviewed and cleared by the University ethics committee before it was released to any external body.

3.13 Summary

The above methods serve the single purpose of creating the framework for data collection that reflects the quantitative and qualitative aspects of the research objectives. The application of the combined mixed models, multi-methods approaches to data collection creates that framework. With the flexibility to accommodate different instruments to obtain information of different types, the approach results in a richer set of data for analysis.

A single model, single method paradigm was not adopted because it had limitations when acquiring data of a diverse and faceted nature. Through

the use of the mixed model, mixed method approach, the issue of acquiring data of a composite nature was resolved. The mixed approach allowed a combination and balance of data sources of different natures into a singular interpretive element.

CHAPTER 4

4. Case studies

4.1 Overview

This chapter provides an overview of the three participating institutions: Griffith University, the Queensland University of Technology and QANTM.

The structure of the case studies adopts the following format:

- The Institution and its organisation structure
- The Divisions assigned to develop flexible delivery capability and integrate learning management system
- The School
- The Programme

This chapter will apply the above format in describing the structure and various functions of the participating institutions in order to provide a balanced insight into the mechanisms that lead to the specific approaches adopted in the implementation of the respective flexible delivery policies and learning management system.

4.2 Griffith University

4.2.1 Introduction

The development of Griffith University is closely tied with the reforms that have been a crucial hallmark of the development of Australian higher education. The birth of the institution is a result of the need for the then state government to develop alternatives to the existing options of higher education that were available in the State of Queensland during the 1970s (Kyle et al., 1999). It was also this need that created the institutional

philosophy and practices that governed the organizational approaches adopted by the university in its day-to-day functions.

Reforms at Griffith University were brought about partly by the changes in the Australian higher education environment, through the ministerial recommendations of Dawkins (1987). The ministerial review called for the reform of the way institutions positioned themselves and also of the various ways that they were funded. Current reforms (Nelson, 2003) are part of the evolution of the operational paradigms that pervades the management and development of the Australian higher education system.

The selection of Griffith University can also be attributed to the development of the regional tertiary education sector within Queensland. These developments saw the creation of new universities that sought to present alternative routes to higher education in the state.

4.2.2 The University

The origins of Griffith University were born in the decision by the Queensland government to act on the recommendations of the Prime Ministerial Committee on Tertiary Education to create a university college in 1965 (Quirke, 1996). That initial decision established the foundation stones of what we know today as Griffith University.

In its early days, the institution was initially conceptualised as an extension to the state-run University of Queensland(UQ) (Quirke, 1996). As an external University College, Griffith was intended as a supporting element of the larger UQ. From that initial position, it soon evolved and grew into what was to become the present Griffith University.

Initially, Griffith University was organized on the lines of a single campus institution. It was only upon review of the recommendations of Dawkins (1987), whose proposal of a National Unified System for higher education that sought to rationalise the then existing model of how institutions were

organized and managed. Under the National Unified System, several colleges were merged together to maximise and better make use of the available resources and also reach a wider target group than was possible as an independent entity. With the changes proposed by Dawkins, the separate colleges of the Mount Gravatt campus of the Brisbane College of Advanced Education (BCAE), the Queensland College of Arts(QCA), the Gold Coast College of Advanced Education(CAE), and the Queensland Conservatorium of Music were progressively integrated within the auspices of Griffith University (Kyle et al., 1999). That merger resulted in the exponential growth of the university, both in terms of its enrolment and physical size. From a single campus institution, the university thus grew in size to become a multi-campus institution spanning the Gold Coast regional area to the Brisbane metropolitan area.

With the increased student population and the increased programmes offered, the resource load on the university also increased correspondingly. It is that changed environment that contributed to the decision to adopt a flexible delivery policy within the university.

As an institution that positions itself as a participant in the development of new pedagogies and technologies, Griffith has since its inception, explored different technologies and conducted reviews that would support such a position.

4.2.3 The reforms

There are two major policy shifts that influenced the development of Griffith University. The first was the Dawkins proposal in the late 1980s that resulted in the merger of colleges and centres of advanced education with existing universities. Griffith University benefited from these mergers in it acquired the capability of offering additional programmes without the usual gestation period associated with IHLs, establishing new schools and programmes.

With the merger in 1990 of the Gold Coast CAE and the Mount Gravatt campus of the BCAE in 1989, the university acquired the capability to offer programmes and develop its competencies in teacher education. With the merger with QCA in 1992, the university acquired the ability to offer programmes in creative arts education. The same response was to be said of the 1990 merger with the Queensland Conservatorium of Music, a conservatorium whose history dated back to 1948 in 1990 (Quirke, 1996).

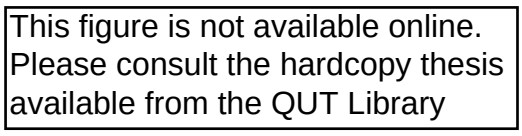


Figure 4.1: Griffith University Development Chart
Source: (Quirke, 1996)

With that merger resulting in a fourfold increase in campus size and along with it the student population, the need for developing a course delivery policy that would allow for the most effective allocation and use of resources became more important. Those needs led to the development and implementation of a flexible delivery policy. That policy was the result of studies conducted by the academic committee into the learning paradigm in place at Griffith at that period and how those methodologies were

positioned to deliver to the Griffith graduate desired academic and non-academic outcomes.

This led to the development of the Griffith Flexible Learning Policy. The objectives of the policy were to establish the basic parameters through which the university was to promote and engage its various end-users in.

The university decided to establish its flexible learning policy through a three-stage model introduced in a DEST commissioned study on online education (Bell et al., 2002). That model allowed the academic services unit to define the various means through which information could be distributed to its intended recipients. Considering the range of programmes available at the university, it was recognised that not all the programmes would subscribe to a flexible learning approach, and the decision to adopt a multimode solution was to maximise overall effectiveness of the policy. Griffith's three mode policy comprised a web supplemented mode; a web dependent mode and a fully online mode (see Table 4.1). The three modes were developed to ensure that the flexible delivery policy covered the range of learning situations that would likely be encountered within the course delivery environment of Griffith University. Based on the results of a DEST (Bell et al., 2002) paper which identified the optimal approach in the design of a course delivery structure, the solution by Griffith bore significant influences from that study.

Mode	Description	Access [#]
Mode A	Web Supplemented (Optional)	Authorised access by enrolled students of information available on the university web portal and online learning resources.

[#] Data extracted from Griffith University Flexible Learning Online definition

Mode B	Web Dependent (Participation compulsory with a limited face-to-face element)	Compulsory mode where students are required to participate in the following situations: (I) Students must use the web to interact with the education content necessary for study (II) Students must use the web to communicate with staff and/or other students (III) Students must use the web both to interact with content and to communicate with staff and/or other students
Mode C	Fully Online (No face-to-face component)	All interactions with staff and students, education content, learning activities, assessment and support services are integrated and delivered on-line.

Table 4.1: Griffith University's three-mode approach to flexible delivery (Data extracted from Griffith University Flexible Learning Online)

However, as with all institutions, the transition into the new paradigm did experience initial opposition. The strategy of the university was to adopt a directive approach in the integration process. Having invested significant resources into the establishment of a flexible delivery capability, the decision by the management body to adopt a compulsory usage policy resulted in mixed responses. Management attributed the resistance and lack of participation to the academic staff's perceived lack of understanding about the merits of having a flexible delivery system and that the academics were confronted with a pedagogical process that was alien to them. An academic interviewed also pointed out that the directive approach indirectly created an atmosphere where the academics were forced to create situations for implementing the paradigm in cases where such paradigms did not fully apply. Moreover, it should be noted that the uptake of online technology was still very much in its early years, as the access to technologies such as the World Wide Web and networks were limited by both costs and computing power.

The concept of flexible learning has now been integrated into the Griffith modus operandi. Since its introduction into the culture of Griffith University, the concept and practice of flexible learning has seen significant evolution, the latest being the review of how it is positioned to assist the university in its future plans (Griffith University, 2004c). This review will be discussed later in this chapter.

4.2.4 The Divisions

Within the structure of Griffith University, the division that was given the task of integrating the new delivery paradigm was the Division of Information Services. An essential element of the institutional administrative services, the Division is responsible for administering and maintaining the functions listed (see Table 4.2):

Administrative Units
Information and Communication Technology Services
Learning Services
Library and Learning Environment Services
Flexible Learning and Access Services

Table 4.2: Administrative Units at Griffith University

Although the division does oversee the overall function of all the listed services, of particular interest is Flexible Learning and Access Services (FLAS) and how it promotes and facilitates the integration of Flexible Learning within Griffith University.

FLAS' core function is to support the integration and renewal of the various learning initiatives adopted by the university academic council.

A key force that sets the direction in which FLAS is presently heading were the findings of the institutional review of teaching and learning capabilities within Griffith in 2004 (Griffith University, 2004a). That review led to the establishment of flexible learning as a key pedagogical entity within the

institutional basket of paradigms which it applies and offers to its staff and students.

But before this review, in the early days of the emergence of the flexible delivery policy, the general consensus of users was that understanding of the depth and scope of this new approach was limited. For any institution to embrace such solutions was a bold undertaking. However, the adoption of the flexible delivery and learning approach was based on the traditional hierarchical framework, a top down approach to the implementation of changes within the institution.

As was discussed earlier, one of the limitations of the initial approach was ironically the lack of flexibility in implementing a flexible delivery policy. By having a directive approach in the definition and implementation of the said policy, it created an environment where the projected users were faced with the dilemma of having to create the resources required for the new approach while meeting the expected quota requirements of the institution.

That environment slowed down the lack of uptake of the flexible delivery solution. However, with the advance of technology and its application within the university environment, it soon became apparent that the flexible delivery solution was well optimised for use with respect to the technological aids.

The Flexible Learning and Access Services is the extension of that experience. Its purpose is to develop and support the various solutions that would be required for the optimal conduct of the various academic activities within Griffith University. That solution came about when the university decided to implement an integrated online portal as its gateway for access to the flexible delivery services for its users.

4.2.5 The Blackboard Learning System

Griffith University selected the Blackboard Learning System (BLS) as the LMS in 2001 (Griffith University, 2001). The selection of the Learning Management Systems (LMS) was influenced by the need to integrate the various services used by both staff and students, setting various levels of access to such services.

As the learning system has a number of different user levels, the decision by the university to enter into an agreement with the BLS Company as a developer was an ideal decision. For the university, the agreement allows for access to the source codes of the system. This allowed the university to further optimise the system for the specific applications and requirements that management had in mind with regard to the system's integration. Being a developer allows for Griffith University, through FLAS, to construct and design modules specific for application within the institution, ensuring that the investment is maintained at a level of desired currency.

4.2.6 The School of Computing and Information Technology

Within the structure of Griffith University, the ownership of the Bachelor of Multimedia belongs to the School of Computing and Information Technology. As its title suggests, the key focus of the school is in the field of information and computing technology. It is also responsible for the conduct of the multimedia programmes in Griffith University. The importance of that function is due to its similarity in subject area with the other studied programmes in the Queensland University of Technology's Creative Industries Communications Design department's Bachelor of Creative Industries and QANTM's Bachelor of Applied Multimedia.

Griffith's offering in terms of the programme components of Design, Programming, Authoring, Visual and Sound Design are similar to programmes found in the other institutions. However, as the main strengths of the School are predominantly focused on the Information Technology

aspects of the subject area, the coverage on the design aspects of the programme might be an issue that warrants further study.

The offering of a multimedia programme is in line with the general trend by institutions in Australia and worldwide. Within the parameters of the study, the identified institutions reflect that trend. In Queensland alone, there are at least three higher education providers, some of which were established under the Australian government's DEET[2] Cooperative Multimedia Centres (CMC) (DEST,1995) initiatives, that offer programmes containing elements of multimedia development and design.

How the School of Computing and Information Technology's Bachelor of Multimedia differs from its competitors lies in its emphasis. Compared with the approach taken by QUT, Griffith University's Bachelor of Multimedia hosted by an Information Technology Faculty has an emphasis on the programming aspects of the subject field. This is an important point as Griffith does have a strong design school in the form of the QCA.

The Bachelor of Multimedia programme is structured around a core group of key subjects and majors through three-year course. Enrolled students are expected to complete 160 credit points during the course of their studies in order to graduate. This requirement can include exemptions and also credit for prior academic and professional experience.

Within the Bachelor of Multimedia programme, there is the option to select majors that the enrolled student can specialise in:

- Internet Computing
- Design
- Multimedia Screen Production
- Sound Production
- Interactive Entertainment

[2] DEET - Department of Education, Employment and Training

The Bachelor of Multimedia is significant to this research for the way that it is delivered using the existing Griffith University flexible learning paradigms and how that compares with similar paradigms at QUT and QANTM.

The identification of a test group was achieved with the participation of the enrolled students of the programme, and the results are reflected in Chapter 5.

4.3 Queensland University of Technology

4.3.1 Introduction

The second institution in this study is the Queensland University of Technology (QUT). Its selection was based on its position as a leading provider of higher education in Australia and also based on my personal experience with the institution for my undergraduate studies.

QUT is an institution that was only recently formed in 1991, through the merger of a number of different technical and educational colleges under a singular administrative framework through an act of state parliament in 1988 (Kyle et al., 1999). It was preceded by the Queensland Institute of Technology (QIT) which merged with the Brisbane College of Advanced Education (BCAE).

Being a relatively young institution, the university relied on the established linkages that its predecessors had developed into their portfolios. Based on that, the University has continued to establish itself as a leading institution involved in both research and consultancy activities.

4.3.2 The University (University for the real world)

The university has since its inception been positioning itself as an institution that separated itself from the many other Australian higher educational institutions by virtue of its philosophy. That philosophy which is committed to excellence in teaching and learning management practices (Kyle et al., 1999), influences institutional policies that in turn create the environment for learning practices. These policies are a direct result of advisory committee recommendations on the projected needs and performance of the university on an annual basis (Queensland University of Technology, 1997a). The advisory committee's reports reflect on the changes to the operating environment of the University. They also identify the key areas that the

committee defines as needing further study and development. As a result of the committee's concerns, the decision to implement a flexible delivery policy within the existing university delivery structure was undertaken. This was approached through the conduct of a forum designed to develop the necessary response and further extended into a trial implementation with the then Arts Faculty (Queensland University of Technology, 1998).

With the successful completion of the study, the decision to implement a flexible delivery policy was undertaken; this policy was developed in consideration of the different objectives that such a policy would need to fulfil in its implementation.

The definition of what flexible delivery entails is based on the University's philosophy on having a student centred teaching and learning capability, and that any implementation is to have that as the primary objective instead of doing so for other purposes (Queensland University of Technology, 1997b). QUT also aims to be a leading innovator in the development and application of learning technologies (Queensland University of Technology, 2003). It is the development and implementation of this policy that leads us to its current interpretation within the institutional framework.

The objectives of developing its teaching and learning capabilities thus led to the drafting of a developmental plan for the university. The QUT Blueprint (Queensland University of Technology, 2003) was an attempt to identify the priorities that the university would need to focus upon in the coming years. That the priorities were all directly leading to a strategic expansion of the university both in terms of size and capabilities was itself a key point of the report. However, it is important to note that the proposed paths are dependent on the volatility of the global economic environment. In the pursuit of strategic expansion, QUT developed specific capacities through the establishment and reorganization of existing capabilities.

Using the established philosophy of creating an integrated teaching and learning environment, the establishment of a unit dedicated to the

development of competencies and technologies related to that objective was a natural progression. That process resulted in what is known as the Teaching and Learning Support Services (TALSS) division.

4.3.3 Teaching and Learning Support Services

TALSS was established to support the institutional philosophy of developing capabilities in teaching and learning practices; it also allowed the university to develop and promote its flexible delivery policy throughout its structure. Within these various sections that make up the TALSS, the one that will be focused on is the Learning & Teaching Unit. TALSS is structured so that it serves the needs of various levels of users as a provider of the various developmental services. TALSS is providing such a service in relation to the objectives to integrate technology mediated teaching and learning activities as stated in the University blueprint.

Of the many different sections within TALSS, a main administrative section oversees the unit's overall functions. This administrative unit monitors development and compliance with the specific objectives of the institution.

It was only recently that TALSS organization was subjected to a regeneration process (Queensland University of Technology, 2004b)
From its inception, the organizational structure of the unit has undergone several changes, often in response to the evolving developmental plans of the university (Queensland University of Technology, 2003). In 2004, the unit again underwent that process. What directly resulted from that revamp was the need to align the services that the unit provides with the needs of its users. The key outcomes of the changeover were an intensified focus on:

i. Development of teaching capabilities
ii. Quality of teaching
iii. Academic skills development of students learning capabilities
iv. Development of student learning environments

v. Development of learning and teaching resources

Based on the above points, the future development of the unit was tuned to a more user centred vision.

The general direction which education is heading into is tilted towards an integrated environment, which aligns itself with the global trend of the lifelong learning model. The movement towards such a path is a phenomena that has been highlighted by Cunningham et al. (1998), Monkman and Baird (2002), amongst others. We have already seen aspects of the changeover occurring, both in the expectations of new students to the IHLs and also through the transformation of the institutions themselves. In the increasingly competitive educational industry, the ability to deliver the desired product in the timeliest fashion positions that provider in the lead. However, it is important to take note of the quality and the method through which that product is delivered.

The transition and gradual integration of the various faculties within the institution into the user-oriented model is an ongoing process. The level of integration is dependent on the subject area that is being delivered. That is an issue that is constantly being explored and expanded upon. When studying the example of QUT, we can see that it has experienced success in the development of a common staff and student portal and the integration of that portal with a course material database server system.
That integrated system, called QUT Virtual, serves as an access portal that the student and staff member can use to complete administrative tasks related to their activities in the university. The portal is also integrated with the learner management system that the user can use for a seamless transition across multiple tasks.

4.3.4 Learning & Teaching

A key element in the development of the capability evidenced by the presence of the online management system is the services offered by the

Learning and Teaching section. The section was established with the aim of supporting the university in the development of its flexible delivery initiatives. The main function of L&T is to support the needs of staff in planning and developing content for release on the QUT OLT system.

The unit was officially known as Software, Multimedia and Interactive Learning Environments (SMILE) until the end of 2004, when it was renamed as the Learning & Teaching (L&T) unit under the reorganization taking place within the division. With the reorganization, the previous components of what TALSS were restructured under a new model of specializations. Under the new structure TALSS is organized in the fashion illustrated in Figure 4.2:

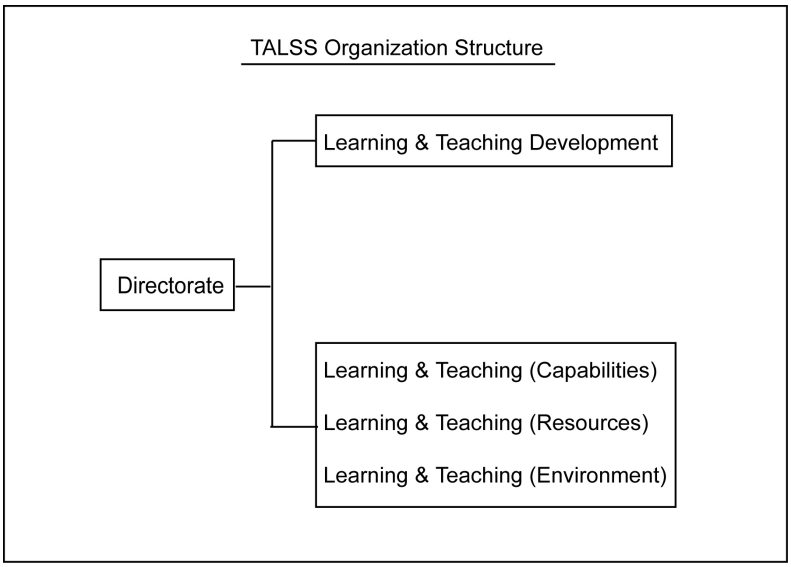


Figure 4.2: Organizational Structure of QUT's Teaching and Learning Support Services (TALSS)

With the reorganization, the objective was to optimise the resource usage and how it is defined. The former SMILE has been restructured into four different sections, discussed below.

i. Learning & Teaching – Development

This section's main focus is on the development of new pedagogies and technologies. From there, the results are then directed to the other sections

for their implementation. This section is also responsible for the overall management of the strategic directions that QUT elects to direct itself in.

ii. Learning & Teaching – Capabilities

The L&T Capabilities section is mainly focused on the 'how' of the overall process. The focus is on the skills development of the academic staff and the enrolled students. The section also engages in the development of the university strategic plans with respect to its response to federal directions and funding guidelines changes in relation to higher education reforms within the Australian higher education system.

iii. Learning & Teaching – Resources

The L&T Resources section is the 'what' or resource planning function of the division. This means that it is responsible for ensuring that the various resource requirements of the other sections are well provided for. This can mean the research and development of new resources in anticipation of changing needs and also the continual maintenance of existing capabilities.

iv. Learning & Teaching - Environment

The environment section is responsible for the management of the physical environment required for the function of the various applications of the institutional delivery mechanisms. This section is the 'where' element of the equation. Its main task is to oversee how the various existing physical and non-physical assets are managed so as to create a viable environment for the conduct of the various learning and teaching base functions of the institution.

4.3.5 The Online Learning & Teaching System

The OLT system is QUT's academic delivery system. It is an integrated collection of different teaching and learning resources and applications that are used to further the university's flexible delivery strategies. The OLT system is also QUT's approach to implementing a LMS into the framework of the institution.

The OLT portal is designed to be integrated with the university's virtual administration system called QUT Virtual. Once logged into the system, the user will gain access to the various relevant sections required for access to information such as course lecture notes, tutorial guides, reading lists so forth.

In the initial development of the OLT system, several commercial systems were evaluated by TALSS with regard to its acquisition and adoption for integration into the institutional system. However what was finally adopted was a customised solution that the university chose to develop on its own. By going down that route, QUT had to develop a mechanism and infrastructure that could support flexible delivery from the ground up.

The basic elements of the OLT system comprise the following:

- Site administration & Administration
- Notices
- Course material Database
- Mailing Lists
- Discussion Forums
- Chats
- Quizzes
- Dynamic Tables & E Journals
- Group Work Areas

What the system does is to create an interactive environment which is inherently flexible for the student to access through the use of the above elements. However, the system is designed only as a supplement to the regular face-to-face sessions that is a function of a university education. It does not aim to replace such sessions entirely. However, as OLT is a customisable system, it will be seen as how it is further developed and evolved to meet the changing needs of the institution in the coming years.

4.3.6 Communications Design

The faculty responsible for the conduct of the Bachelor of Creative Industries (BCI) programme is the QUT's Creative Industries Faculty.

The main focus of this department is the conduct of the various subject modules that fall under the domain of digital media development.

It is responsible for the conduct of the various Creative Industries course in digital media; they include:

- Bachelor of Fine Arts (Animation)
- Bachelor of Creative Industries (Communication Design)
- Bachelor of Creative Industries (Communication Design)/Bachelor of Information Technology

The department has an interest in the conceptual development of multimedia applications and theory. This is evidenced by the shift of emphasis of the programme from being a general multimedia coursework based Bachelor of Arts to a more specialised Bachelor of Fine Arts and Bachelor of Creative Industries programme.

The department is constantly involved in the reassessment of its core mission and it works in close association with research centres such as the

Australian Centre for Interaction Design (ACID) to develop and promote that practice.

4.4 QANTM

This section on QANTM relies on information gathered through the conduct of face-to-face interviews with staff members from the school and also through examination of the available materials on the school's organizational structure (QANTM, 2003).

4.4.1 Introduction

The third case study in this thesis is QANTM (Queensland and Northern Territory Multimedia). The inclusion of QANTM stems from the fact that it is an example of a commercial enterprise undergoing the transition from an organization that delivers diploma level course to that of an accredited higher degree level. With it origins dating back to the first establishment of the Cooperative Multimedia Centres (CMC) in Queensland since the 1990s, the QANTM Company has established itself as a provider of learning solutions catered for the commercial client.

However, for the purpose of this thesis, it important to highlight the fact that only QANTM College will be covered for the purpose of the survey. QANTM as a business is made up of its two units of operations, that of QANTM Studio and QANTM College. QANTM Studio, the commercial arm of the company is mainly responsible for the development of new media business relationship in the corporate and government sectors. QANTM College is the arm that is tasked with the development of the company's commercial new media education and training capabilities.

QANTM College fits into the study due to the fact that it presents an interesting study of an organization that is in the midst of transition. What makes it more unique is the fact that it is a commercial undertaking. QANTM is by its mission statement a commercial enterprise, whose objectives are critically linked to its profitability.

Before we delve further into that, there are a number of points that needs to be highlighted in order for a clearer understanding of the situation:

QANTM is a CMC. It was created as a joint venture with partners from both the commercial and academic industries to establish and further the objectives of the state and federal governments with regards to the level of training opportunities available in new media specialization in the Queensland. These partners included the Queensland State Government, the Queensland University of Technology and Griffith University

QANTM is a relative newcomer to the provision of higher education programmes. Although it has in place existing elearning capabilities, it is developed for a very different target base, which is targeted to fill the segment of the education industry not supported by the mainstream institutions, i.e. the provision of programmes to its clientele on a commercial basis. As to its suitability to be reconfigured for application in higher education programmes, it is still in the evaluation stage.

QANTM is a specialised commercial college; it does not have within its framework any allowance for the offering of programmes that fall outside its defined specializations.

QANTM in its present status is still in the early stages of establishing itself as a higher degree education provider. Its continued provision of the programmes is dependent on the continued commercial viability and also the projected development of the industry. QANTM as a college clearly operates under different academic and management constraints and objectives when compared to the established universities.

With the above points in consideration, it is hoped that by applying and comparing the different IHLs approaches, it will be possible to derive a clearer analysis of the existing state of how the flexible delivery is being integrated and implemented by this institution.

4.4.2 The institution

The operating model that QANTM College subscribes to is very similar to what is being practised in most education providers. There are standardised course or programme objectives that are used as a point of reference in the conduct and delivery of the various modules contained within the programme.

QANTM College can be classified as a niche education provider. The various programmes and services developed are targeted for a specific market, focusing on the new media technology segment of the education market.

The College began offering its educational provisions through the conduct of certificate and diploma level qualifications in its early years. From that initial position, it began to develop its own competencies through the acquisition of the required skill level and experience needed for the conduct of degree level programmes.

As part of the accreditation process, QANTM was required to establish a set of operation procedures manuals. These manuals outline the specific approaches and programmes structures under which the degree programmes offered by QANTM are organized. Through the assessment and implementation of the various procedures specified in the document, it allows the programme to be evaluated and assessed by an external auditor. Once it is determined that the policies and its objectives fall within the required parameters set out by the certifying bodies, the submitting organization will be given the accreditation that it requires to engage in that particular activity.

The decision by QANTM to engage in the delivery of higher education programmes in addition to its existing programmes can be attributed to the increasing popularity of education as a commercial activity. (Include comparative table)

It was also only recently that the college was acquired by SAE Institute, which provides it with linkages to a larger corporate grouping? In terms of both infrastructure and intellectual rights, the entry into the umbrella of the SAE Institute group will potentially result in wider access to future markets and integration with colleges in the same group.

QANTM was identified as a case study subject due to its position as a provider of technology education that departs from the traditional university based route. How it arrives at that objective is still part of an ongoing process and its recorded actions are pertinent to the study.

4.4.3 The Programmes

As a commercial college, QANTM develops and specifically targets its programmes to meet an identified need. For the case of the Bachelor of Applied Multimedia, the programme was developed to answer the specific need by the industry for suitably qualified persons.

The QANTM response was the development of a programme that created opportunities for people who were otherwise denied positions in the mainstream universities to obtain such qualifications. Within the structure of QANTM, the Bachelor of Applied Multimedia is part of a group of multimedia-linked undergraduate degree programmes offered to students who either choose an alternative approach to acquire their Bachelor degrees or fail to meet the required standard for admissions into universities.

Through a programme that combines a classroom learning environment with industrial linkages, QANTM presents an opportunity for students to further their studies with a view to securing employment through the linkages.

The Bachelor of Applied Multimedia programme is organized along the same lines as similar programmes found in public universities. Before it could be offered as an undergraduate level programme to the public, the programme had to be submitted for a series of accreditation reviews. These reviews were established to maintain a required level of quality, both in terms of the provision and the level of academic quality commensurate with a programme offered at that level.

It remains to be seen how the merger of QANTM with a better resourced SAE Institute impact on the development of the institution as a whole. As the merger was only recently announced in early 2005, further study into how the acquisition of QANTM will lead to a diversification of the portfolio of SAE and the plans it has in store for QANTM is warranted.

4.5 Summary

Each of the three participating IHLs were bounded by the specific constraints with regards to how their operations. These constraints were applied in context to the specific operating environment that the institutions were functioning under. Institutions like Griffith University and the Queensland University of Technology operate under a different charter from QANTM. They are subject to different operating demands and are required to maintain accepted performance level. In addition, the two established universities are also expected to contribute to the development of general society, Being funded with a percentage of public monies, they are required to report their performance to their respective funding bodies, whereas QANTM is a commercial entity and its operations functions under an entirely different paradigm.

With the development of technology, both communicative and interactive, the bridge between theory and applications is becoming increasingly narrow.

With regards to the level of adoption of the delivery approach, there is still some development to be made with regards to the ideal solution. In most

scenarios, the adopted solutions, both in terms of the institutional policy and the specific learning management system needs to be refined through a stringent evaluation process where the needs and capability of the institution and learner are taken into account.

However, the coming chapter will show the gap between the different approaches is becoming increasingly narrow. The task is to establish and understand the difference and to exploit them, in order to create an ideal operating environment, for both the institutions and their students.

CHAPTER 5

5. Analysis of survey

The adoption of any new delivery approach into an institutional framework is subject to a variety of different forces, both internal and external. The introduction of a LMS-based approach, is likewise not exempted from the same forces.

To answer the question outlined in Chapter 1, an understanding of the response of the users is required. The implementation of any learning approach or strategy is dependent upon one important factor, that of its acceptance by its targeted users. Hence, the rationale for the conduct and analysis of the given survey here. The findings at the end of this study will present insights as to the expectations and success of the respective institutional approaches to the implementation of LMS into a higher education environment.

5.1 Overview

With the increasing adoption of flexible delivery approaches and learning management systems within institutions of higher education, it raises the question of its effectiveness in delivering the desired outcomes. The flexible delivery approach currently adopted is an adaptation of earlier practices. It adapts and applies the practices of different approaches into a singular technology mediated solution. That solution is often delivered in the form of the institutional learning management system.

However, the actual definition of what is flexible delivery still varies from institution to institution and is itself still based on the specific objectives of the respective institution.

As part of the study to determine the efficacy of the respective delivery policies of selected higher education institutions, an online survey was conducted with participants enrolled in multimedia undergraduate

programmes. The survey, conducted during August 2004, was designed to collect data pertaining to the user response to their respective institution's implementation of a flexible delivery policy and learning management system. At the conclusion of the survey, the collected response totalled 60 responses; namely, 40%(24) from the Queensland University of Technology, 33%(20) from Griffith University and 26%(16) from QANTM.

The scope of the study primarily focused on the user expectations of the flexible delivery approach and to what extent the management system contributes in the conduct of the programmes they were enrolled in.

5.2 Demographics

From the data gathered from the 60 respondents, a demographic profile of the respondents was generated to establish a reference for the analysis of the responses. Key to the data was the breakdown of the respondents' age as it was required for a detailed interpretation of the user expectations and also to determine if there was an age-related bias present.

For the first section of the online survey, the following questions were asked of the respondents:

Q1. Which Institution are you currently enrolled at?
Q2. What is your present mode of study?
Q3. What is your year of study?
Q4. What is your sex?
Q5. What is your age?
Q6. What is your nationality?
Q7. What is your country of birth?
Q8. What is the highest academic qualification attained by yourself?

As was discussed earlier, the total collected response was 60 in all; this was distributed in the following order (see Table 5.1):

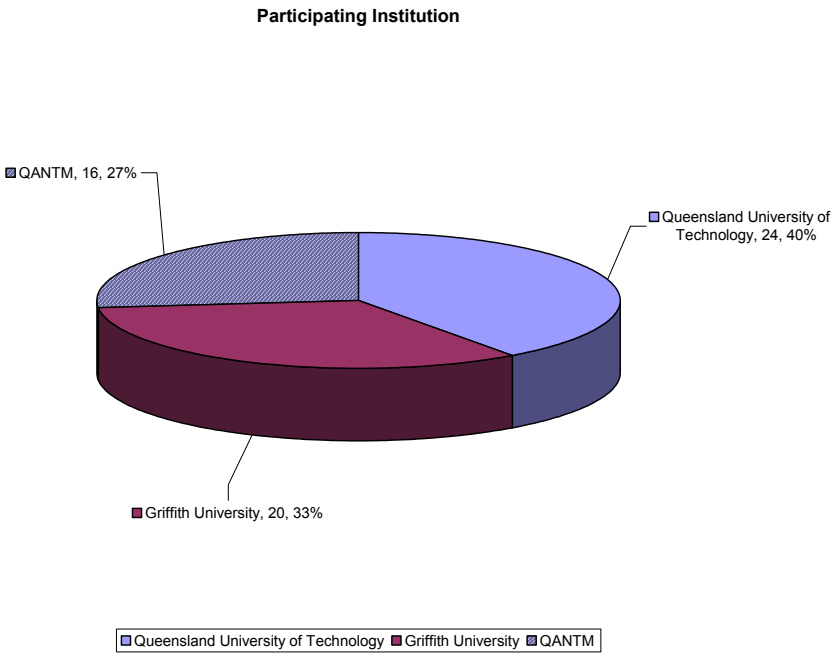


Figure 5.1: Institutional Breakdown

Q1. Institutions	Responses	
	N	%
Queensland University of Technology	24	40%
Griffith University	20	33.3%
QANTM	16	26.7%
Total	60	100

Table 5.1: Participating Institutions

For the most part, the majority of respondents were enrolled under their respective programmes as full-time students (see Fig. 5.2). This mode of study presented evidence that full-time study was the preferred option when compared against completing the programme as a part-time course.

The rationale for the choice can be attributed to the critical nature of time of the specific programmes. In context of the specific subject field of multimedia, although the fundamentals remain constant, the technologies that sustain it are in a state of constant flux. The various modules offered in the various institutions are in a constant revision so as to maintain their currency and relevance in the face of the rigours of the evolving market. The full time mode of study allows the student to complete that education in the minimum time possible, allowing the student to depart from the

programme with a set of qualifications and knowledge that is at least current with the prevailing levels.

The result might also result from the age of students, who largely belonged in the 18-to-24 age bracket (see Table 5.4). These young adults presumably have lighter work and familial commitments than an older student.

Another reason for the resulting data could be that for the majority of the students, the programme is an extension of their academic careers and doing their degrees as a full-time students afforded them the best approach in that undertaking. This data indicates that as part of the changed employment environment where the onus is on the employee to maintain his/her professional currency, the taking of such courses is just one of the many approaches for fulfilling such demands.

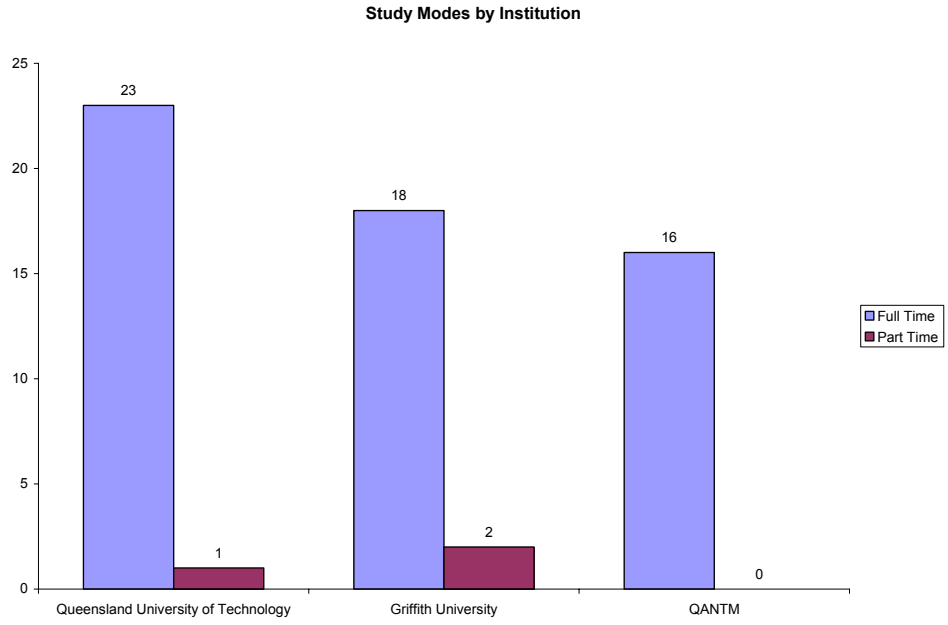


Figure 5.2: Study Modes

Q2.	Institutions	Full Time/Part Time	
		N	%
Queensland University of Technology		23/1	38.3%/1.7%
Griffith University		18/2	30.0%/3.3%
QANTM		16/0	26.7%/0%
Total		57/3	95%/5%

Table 5.2: Study Modes

However, it is yet to be seen if the efficiencies and flexibilities offered by a flexible delivery policy will see an increase in part-time enrolments. The merits of the policy are that it creates the opportunity for the learner to be freed of being constrained by the operational hours of the institution.

The flexible delivery and off campus options provide individuals already in employment the opportunity to acquire the qualification required for maintaining his or her professional currency, which is what the concept of life-long learning is essentially about. In addition, having a flexible learning option allows for the student to identify and manage his/her time and also to schedule his/her attendance of the required lectures without the constraints of the regular full time programmes.

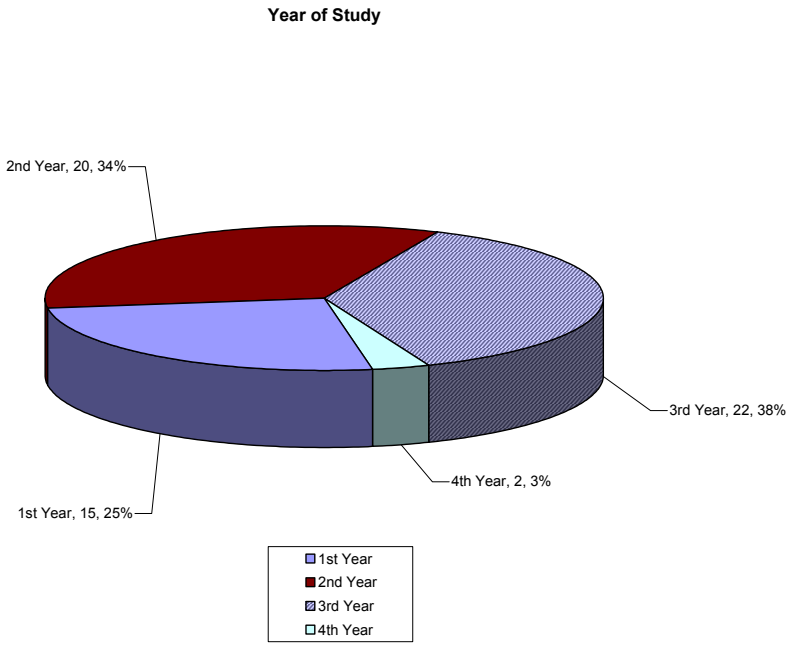


Figure 5.3: Year of Study

From the analysis of the questions related to the nationality of respondents (Question 6), it was reflected that out of the 59 respondents, only 67.8% were domestic students (of the 60 overall respondents, one chose not answer this question). The rest of the respondents were from countries as far as that of Russia as indicated by the response gathered from the completed survey (see Appendix C).

Having an international cross-section to the respondents profile demonstrates the increasingly trans-national nature of higher education. Students are becoming aware of the opportunities offered by educational systems beyond what that is available to them in their native countries. There is also the qualitative effect; the standard of Australian higher education has always been of a consistent level, attracting international students to enrol in programmes. This has benefits to the Australian society, from both an economic perspective and a cultural perspective.

The economic benefits are that they bring in foreign investments; these investments might come in various forms, through the course fees that they pay to the additional spending on goods and services that they contribute to the Australian economy. The cultural benefits are that the presence of an international student segment enhances the already thriving multicultural society in Australia. It introduces cross-national interactions and networks that could reap additional benefits in time. Furthermore, these linkages have the benefit of fostering relationships that would benefit the educational institution in the long term. For example, domestic staff and students build contacts, networks and knowledge of cross-cultural and international issues.

This was reflected through the internationalism of the programmes, casting the net to encompass a larger source of full fee paying students to support the institutions instead of having to solely rely on the government and domestic students for income. It also indicated that the learning environment is not only for a strictly domestic or regional market but also an international market. It is interesting to note however the international popularity of the multimedia programmes being offered to international

students comprised a sizeable 33.2% of the 59 students. From my observation studies, the benefit of this can be seen in the increased cross-cultural interactions taking place and also through the increasing transfer of ideas and technology across physical boundaries.

The extent of the internationalisation of the programmes has been enhanced by the increased demand for higher education worldwide. This in turn promotes the branding and marketing of Australian institutions as accredited and quality providers of higher education products globally. If the figures obtained are representative of all Australian multimedia programmes, then such programmes are comparable with the figures released by the Australian government in its annual statistics on international students undertaking higher education qualifications (DEST,2004a). In the same census taken of the percentage of international students enrolled in Australian institutions, 13.7% of the surveyed Australian institutions' student bodies were made up of international students. This figure is a signal of the popularity of the Australian brand. However, it must be noted that the figure is subject to shifts. These shifts are a result of changing economic and political forces present in the overseas countries and are also in part, driven by the changes in the foreign exchange rates.

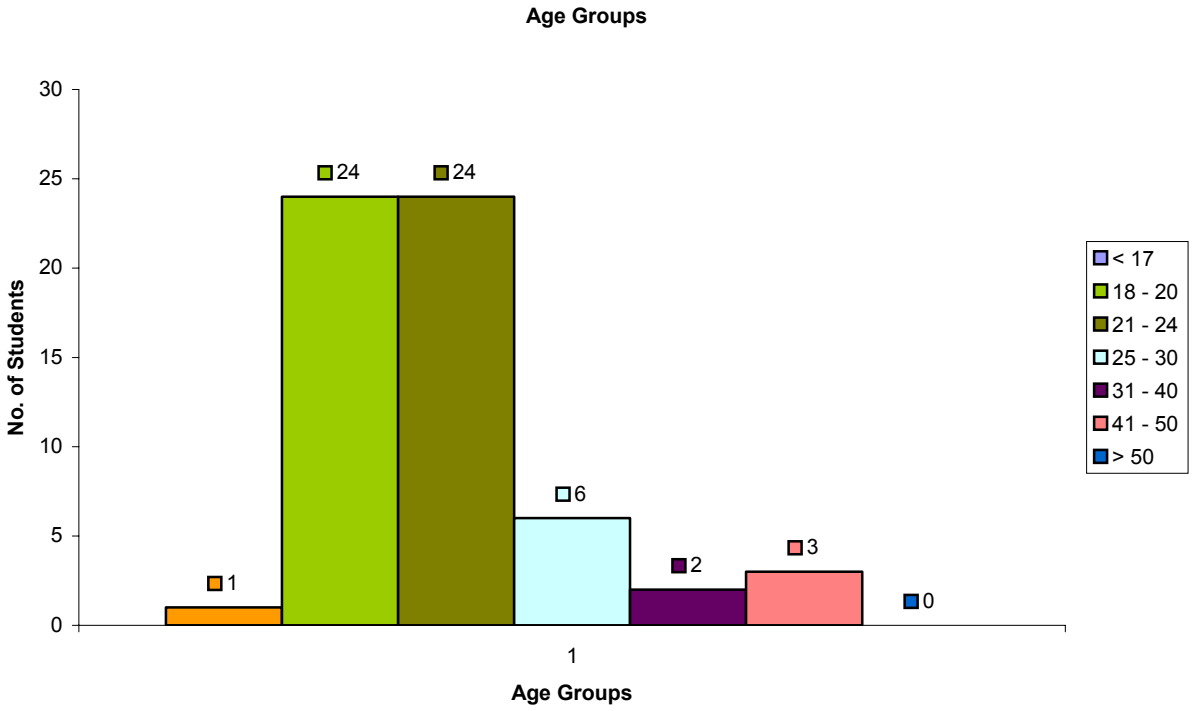


Figure 5.4: Age Group

Q5. What is your age?	Response	
	N	%
< 17	1	1.7%
18 – 20	24	40%
21 – 24	24	40%
25 – 30	6	10%
31 – 40	2	3.4%
41 – 50	3	5%
> 50	0	0%
Total Respondents	60	100%

Table 5.3: Respondent's Age

The data collected on the age demographics of respondents found that the majority of the respondents were in the 18 – 24 age groups where entry into a university environment typically starts (see Fig. 5.3). The cohort thus seems relatively representative of the "younger" student typically seen in Bachelor degree programmes. With 80% of the respondents falling into this category, it is also possible that the median age falls into this range due to the techno-centric characteristics of the programmes offered.

From the examination of the data, it is interesting to observe that 5% of students are located in the above-40s bracket. Although this by itself is unremarkable, it does reflect the fact that there is the possibility for adult learners to still participate in the programmes offered.

Q4.	What is your sex?	Response	
		N	%
Male		29	48.3%
Female		31	51.7%
Total Respondents		60	100%

Table 5.4: Respondent Sex

It also has to be pointed out that the male/female distribution (see Table 5.4) of enrolled students in the multimedia programmes is fairly balanced. It does not exhibit any of the equity issues seen in other techno-centric programmes such as engineering or built-environment.

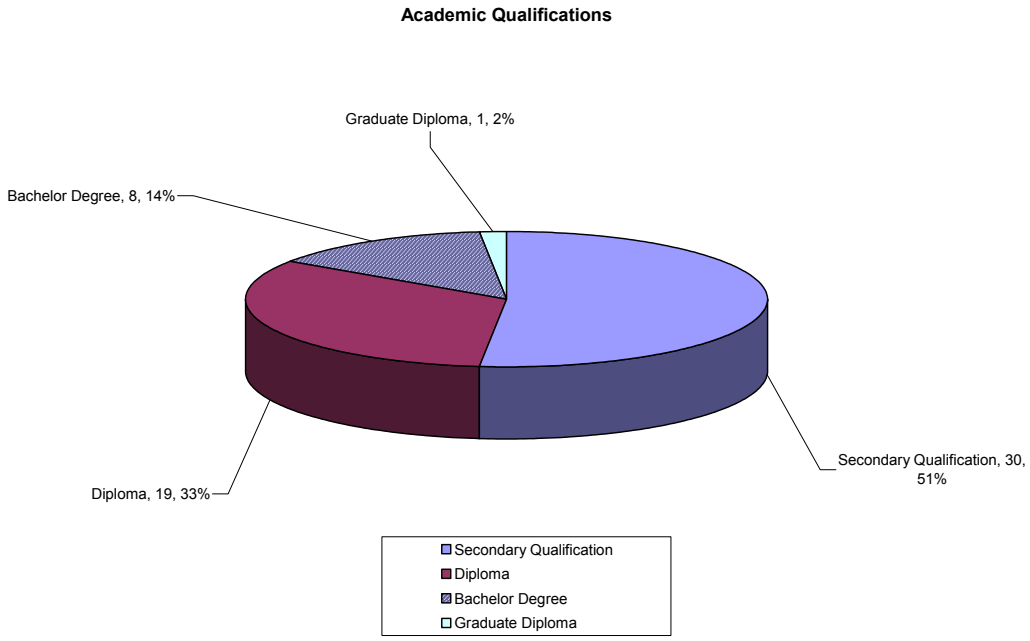


Figure 5.5: Academic Qualifications

Learners are increasingly looking at the attainment of higher qualifications as a means of exploring a career change or for the purpose of self interest and widening their scope. This data also reflects the trend of adult learners taking on additional secondary qualifications during the course of their

employment career as most of the respondents with the degree qualification would have prior employment careers by this time.

5.3 Employment

For the second part of the survey, the objective was to collect the relevant data pertaining to the economic profile and expectations of the respondents. To acquire the appropriate data; the respondents were asked the following questions:

Q9. Do you have any working experience?
Q10. If yes, how many accumulative years of working experience did you have in total?
Q11. What was the mode of employment for the past 2 years?

The next observation gathered from the survey was the academic backgrounds of the respondents. According to the profile, almost half of the respondents possessed a post secondary education, of which 31% were holding a diploma level qualification. However, an interesting point is the number of students who have a bachelor degree prior to undertaking the multimedia programme (13%). This can arguably be attributed to either a desire for professional upgrading or personal creative development. This data reflected (See Table 5.5) respondents' profile (Questions 9 to 11) and the reasons that the respondents gave in Question 12 when asked why they chose to enrol in their respective programmes.

Q8. **What is the highest academic qualification attained by yourself?**	**Response**	
	N	**%**
Secondary Qualification	30	50%
Diploma	19	31.7%
Bachelor Degree	8	13.3%
Graduate Diploma	1	1.7%
Post Graduate Degree	0	0%
Total Respondents	58	96.7%
Did not respond	2	3.3%

Table 5.5: Academic Qualifications

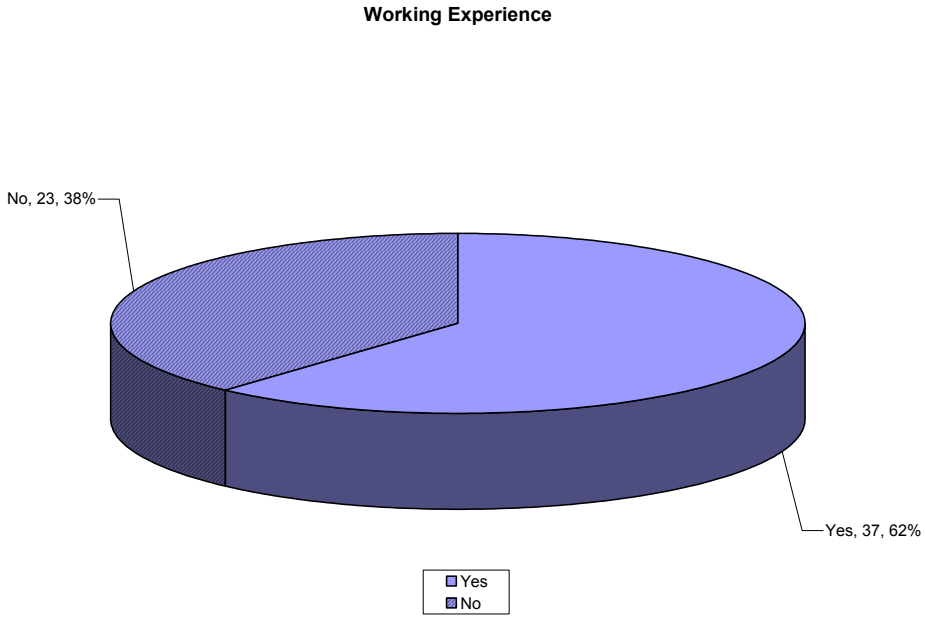


Figure 5.6: Working Experience

Q9.	Do you have any working experience?	Response	
		N	%
Yes		37	61.7%
No		23	38.3%
Total Respondents		60	100%

Table 5.6: Prior Working Experience

Most of the respondents entering the programme had employment experience prior to enrolment (see Table 5.6). However, as the most of the respondents were aged between 18 and 24, the extent of their employment history might not be particularly established. This can be attributed to the lack of paid employment maintained by the respondents (see Table 5.6).

As indicated by the responses to Question 10, many of the respondents (45%) indicated that they had two or less years of working experience prior to enrolment. The data thus reflects the relative early stage of most subjects' position in their employment or professional lifecycle.

As most of the subjects in this age category are employed in mainly casual positions, it is highly probable that any serious thought be given to the acquisition of additional skills required to advance in those positions. It is also possible that the respondents are in their stated employment fields due to circumstances which are beyond their control and that prevailing employment conditions overwhelm other concerns.

Q10.	If yes how many accumulative years of working experience did you have in total?	Response	
		N	%
0		7	11.6%
1		9	14%
2		11	18.3%
3		6	10%
4		0	0%
5		2	3.3%
6		3	5%
7		2	3.3%
8		1	1.7%
9		0	0%
10		0	0%
11		0	0%
12		0	0%
13		0	0%
14		0	0%
15		0	0%
16		0	0%
17		0	0%
18		0	0%
19		0	0%
20		0	0%
> 20		2	3.3%
Total Respondents		43	71.7%
Did not respond		17	28.3%

Table 5.7: Accumulative Work Experience

When the results of Question 11 were analysed, it was observed that nearly half had no form of employment, be it full-time or part-time in the past two years (see Fig. 5.8). Of those who were employed in that period, the vast majority held part-time positions only. This seems inevitable given that the figures on age and previous study background suggest that the majority of respondents have entered the programmes directly from secondary school

studies or possibly from another diploma/degree course with little or no break between the former and current programmes. In sum, the responses reflected the relative early stage of the respondents' professional careers.

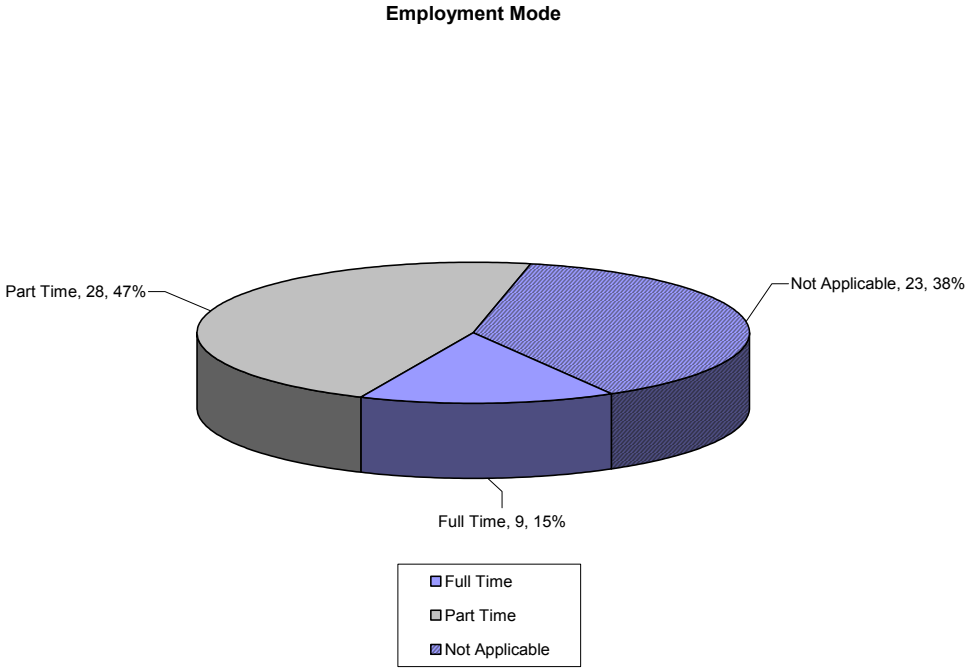


Figure 5.7: Employment Mode

Q11.	What was the mode of employment for the past 2 years?	Response	
		N	%
Full Time		9	15%
Part Time		28	46.7%
Not Applicable		23	38.3%
Total Respondents		60	100%

Table 5.8: Employment Mode

Most of the respondents indicated that the main mode of employment was part-time. Again, this relates to the fact that most of the respondents are in full time studies. Where the data reflects on the respondent being in full time employment, it suggests that they could be more mature subjects with a longer employment history.

The information and knowledge societies involve a transition towards a dynamic employment model where individuals are more likely be engaged under contractual or part time terms (Mackay et al., 2001). The

employment landscape will be one where recruitment will be focused on how much of a contribution the employee will be able to offer to the employer. Once that utility is diminished, the value of that employee likewise diminishes.

Such a mentality shift can already be seen in the practices and policies of many workplaces. The traditional concept of what defines as the study to work practice is being re-evaluated (ILO,2000).

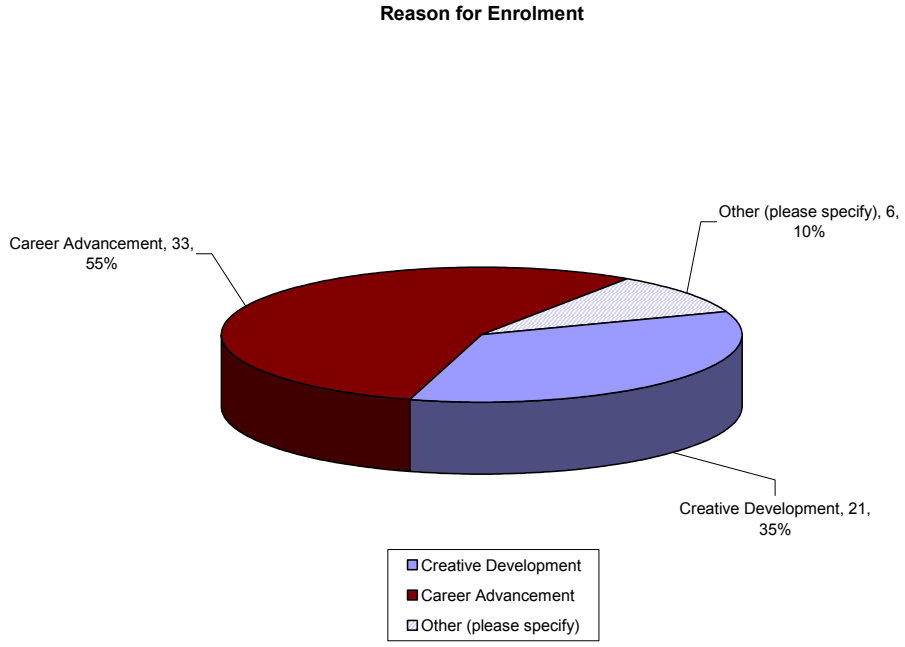


Figure 5.8: Reason for Enrolment

Q12.	What is the main reason for enrolment in programme?	Response	
		N	%
Creative Development		21	35%
Career Advancement		33	55%
Other (please specify)		6	10%
Total Respondents		60	100%

Table 5.9: Reason for Enrolment

Almost half of the respondents indicated economic reasons as their motivation for enrolment. Of the 60 respondents, 55% indicated that career advancement was the main motivation for their taking the course (see

Fig.5.9). This agrees with the trend of individuals taking up programmes that would have a positive impact on their career development. The justification and analysis of this group is straightforward; they chose to go down the specific path in the hope of securing a better future for them down the road.

For the remainder, 35% indicated the main reason as being that of wanting to pursue their creative talents. The remaining 10% gave other reasons; their motivations ranged from creative development to having the desire to career advancement (economic).

In sum, for the majority of the respondents, the enrolment in the programme was the next step in their academic careers where the acquisition of the Bachelor degree would prepare them for their respective professional careers.

5.4 Internet

Respondents were asked questions about their proficiency with the use and application of Internet technologies as part of their daily activities and learning. These questions related to the degree to which they used the Internet and its related technologies in their daily activities and learning.

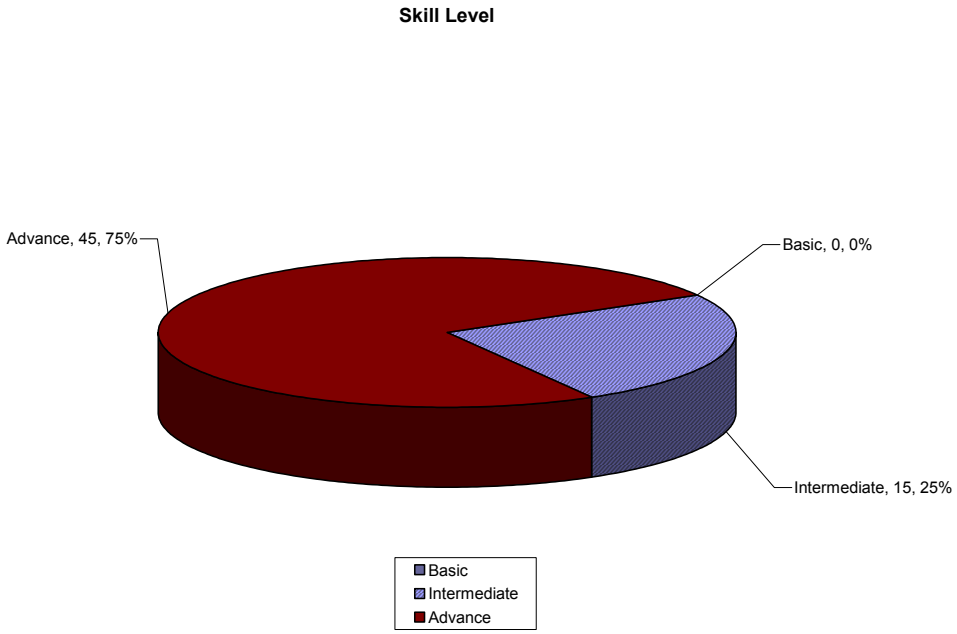


Figure 5.9: Skill Level

Q13.	How would you rate your skill level in the use of the Internet?	Response	
		N	%
Basic		0	0%
Intermediate		15	25%
Advanced		45	75%
Total Respondents		60	100%

Table 5.10: Internet Skill Level

For Question 13, the respondents were asked about their individual skill level with respect to the knowledge of Internet technologies and applications. This question helps to ascertain their level of competence with regard to the use of the Internet and also how they can apply the knowledge to fully exploit the technology to their benefit.

Of the 60 who answered, 75% claimed to have an advanced level of knowledge (see Table 5.10). This indicates the level of competence that is expected of students enrolled in media-technology-based programmes.

Of the remainder, 25% claimed to have an intermediate level of knowledge. The most likely reason for that response would be that respondents came from variable backgrounds. Media-technology-based programmes are often crossover programmes; these programmes are often used by an individual with qualifications in one field to attain qualifications in another completely new field. In other words crossover programmes are courses that are designed to allow holders of qualifications in different disciplines to acquire a desired qualification through the completion of a select basket of modules.

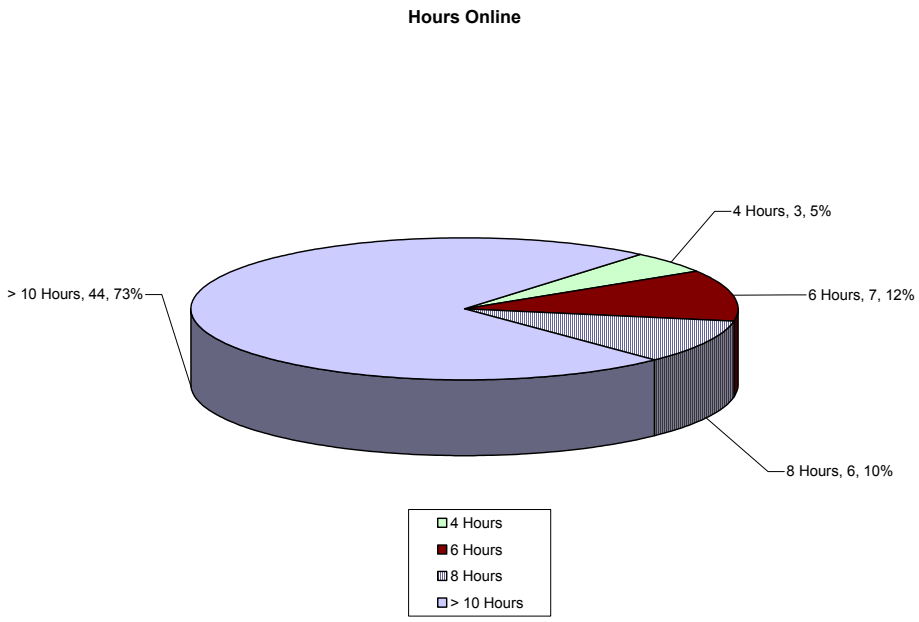


Figure 5.10: Hours Online

Q14.	How many hours on average per week do you log on to the internet?	Response	
		N	%
< 1		0	0%
1		0	0%
2		0	0%
4		3	5%
6		7	11.7%
8		6	10%
> 10		44	73.3%
Total Respondents		60	100%

Table 5.11: Time Spent Online

The response to Question 14 was not surprising after responses to the previous question. The profile of the respondent as being an Internet savvy user has already been established by respondents' indication of their respective skill level. Moreover, in order to attain that level of competence, it can also be extrapolated that they have to spend a minimum amount of hours to acquire that proficiency.

For the 60 respondents, 73% indicated that they spend more that 10 hours a week on the Internet (see Table 5.11). .A normal session depending on the user and the activity can run from three to four hours a day. This can include the various online activities such as online chats, forums, online gaming and so forth.

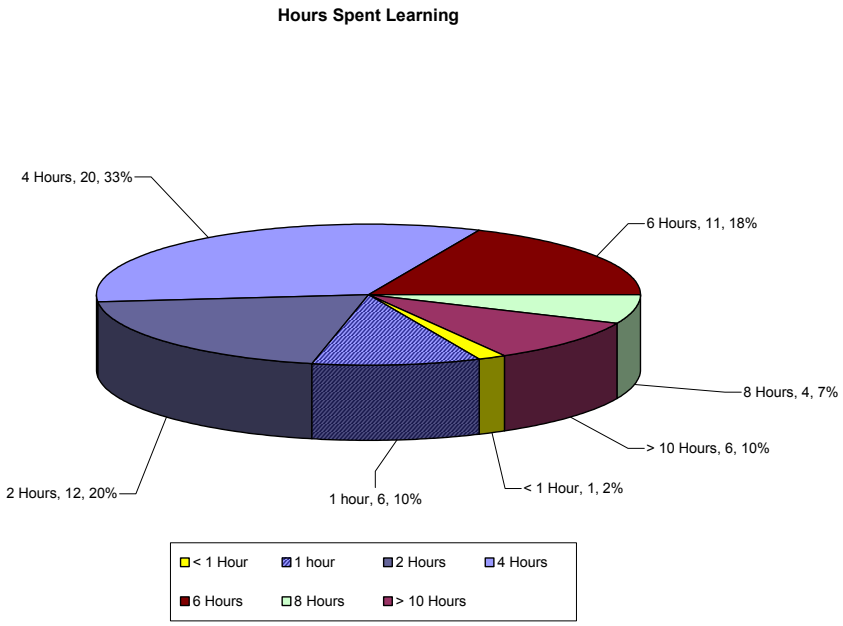


Figure 5.11: Hours Spent Learning (Online)

Having established the data describing the respondent profiles, the next step in this research was to examine the responses towards the use of flexible delivery as part of their learning routine. The participants were invited to provide their responses to questions that inquired about the extent to which they made use of the medium and how that contributed to their learning process. The objective was to acquire a profile of how they made use of the technology and how that technology contributed to their learning ability.

Q15.	How many of the above hours are used for learning? I.e. with respect to the research and retrieval of materials used in the course of study?	Response	
		N	%
< 1		1	1.7%
1		6	1.7%
2		12	20%
4		20	33.3%
6		11	18.3%
8		4	6.7%
> 10		6	10%
Total Respondents		60	100%

Table 5.12: Time Spent Online (Learning)

Given that access to the internet is a common aspect of societal function, the number of hours consciously allocated by the respondents to the learning process is fairly balanced. The majority of the respondents indicated that they spend at least four hours a week for the explicit purpose of learning (see Table 5.12). However, it has to be highlighted that it is difficult to arbitrarily establish when learning takes place within an Internet based environment. The distribution of hours allocated is fairly balanced, with a spread of respondents evenly distributed across the options allowed for answer.

From an institutional perspective, the difference in activity reflects the level to which the users have embraced the technology and integrated it into their learning stratagem. The collected data was observed for how the response differed when compared institutional-wise.

When queried on the availability of course materials online, of the 24 respondents from the Queensland University of Technology, 70% indicated that they felt were significant enough for their learning needs. This compared rather differently to the response given by the Griffith University group with only 56% of respondents from that institution responding positively. Given that Griffith University has a longer history with regard to the practice of a flexible delivery policy, this poses the question of how well-managed the system is. On the other hand, it is possible that Griffith University students had higher expectations because the flexible delivery policies had been in place for so long. QANTM on the other hand had a similar response of 50%, even though that the institution is still in the process of defining its own flexible delivery policy. All this relates to the question of how well positioned are the existing guidelines on the amount of material being released online, and how it affects the viability of the approach as a learning tool.

In addition, 20% of total respondents indicated their belief that the approach served their requirements entirely when it came to the various course materials that required for the study of their programmes (see Fig. 5.15).
In order to further understand this relationship, a more detailed study into how the different variables function in relation to each other can be conducted. How these variables affect learning and how they can be modified to create a different outcome could also be investigated.

Q16.	How much do you rely on the Internet as a research tool in the completion of your study modules?	Response	
		N	%
None at all		0	0%
Little		1	1.7%
Average		5	8.3%
Significant		43	71.7%
Entirely		11	17.3%
Total Respondents		60	100%

Table 5.13: Use of Internet as research tool

With the availability of search engines and their extensive databases, these multimedia students have been using them as tools for learning. As intermediate to advance users, most of the respondents would have significant knowledge of how to make use of search engines such as *Google* and *Vivisimo*.

Most of the respondents would make use of those engines to search for the required information from the Internet. Of the 60, 71% stated that they relied significantly on the Internet as part of their research (see Fig. 5.13). A further 18% of the respondents stated that they exclusively relied on the Internet for their research data. However, the concern here would be the academic quality and reliability of the information resourced from the Internet.

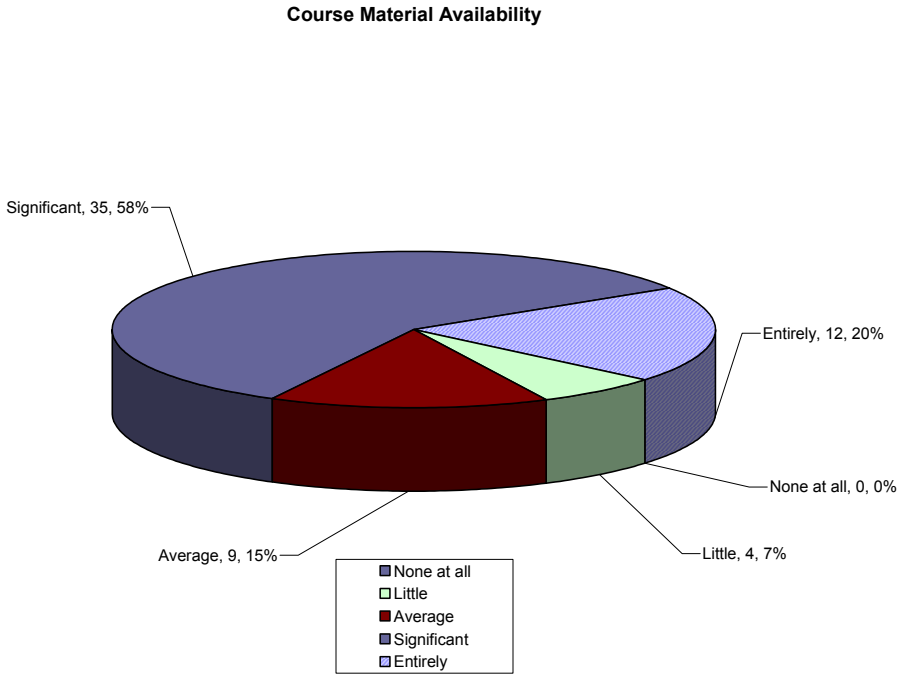


Figure 5.12: Course Material Availability

Q17.	How much of your course materials are available through the Internet?	Response	
		N	%
None at all		0	0%
Little		4	6.7%
Average		9	15%
Significant		35	58.3%
Entirely		12	20%
Total Respondents		60	100%

Table 5.14: Course Material Availability

The response to the availability of materials through the Internet reflected the users' perception of the efforts of the institutions in presenting the relevant course materials online. The availability of the materials is an issue that hinges on the stability and capability of the institutional delivery infrastructure. It is also determined by the maturity of the systems and how they integrate to produce the desired environment for the transmission of the said materials.

Most of the students had a positive response to the current level of provision offered by the institutions. This reflects the level of customer satisfaction that the institutional delivery system aims to achieve.

Having materials online is just one aspect of the flexible delivery paradigm. It is important to note however that the amount and type of materials available is subject to the requirement and objectives of the course itself. Within the various multimedia programmes studied, the specific stated objectives differed from institution to institution. In addition, the programmes are convened by academic teaching staff with different expectations of what the learners are expected to achieve.

Because of this, the amount of materials available would have to be matched with that objective. Therefore, depending on the grade and level of the particular subject, the students' response to the question would have similar biases.

Moreover, the type of content released to the students may have a time critical component. Under the flexible delivery system, although the objective is to foster transference of reliance on physical delivery to an alternative approach, the main point of contact is still through the scheduled lecture and tutorial sessions. There is thus still a need to manage the flow of data to the user, which then might lead the respondents to state that they do not see many materials being released for their use on the Internet.

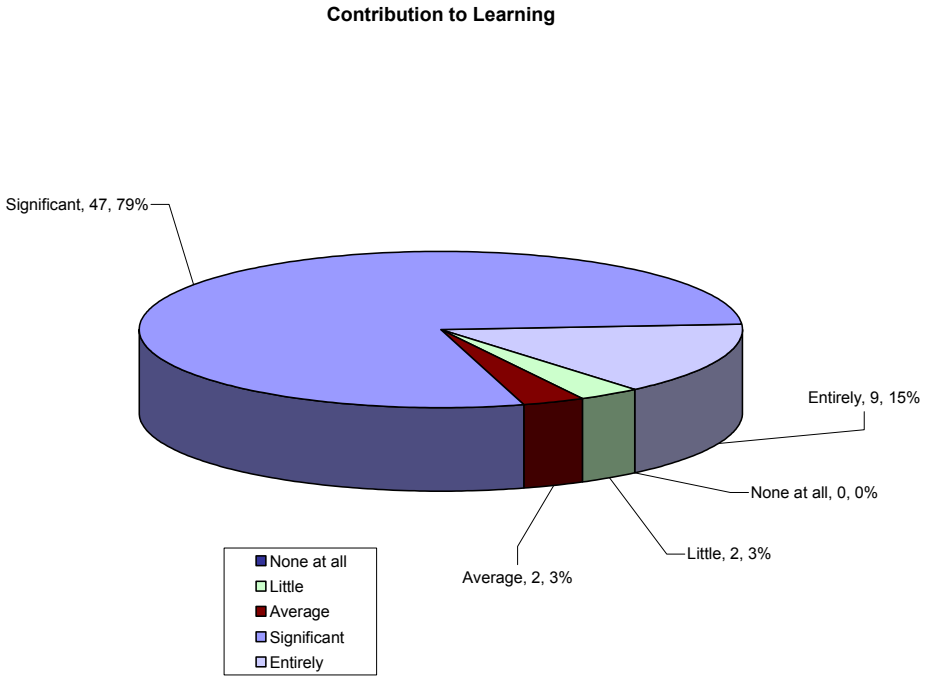


Figure 5.13: Contribution to Learning

Q18.	How much of a contribution does the Internet play in your learning?	Response	
		N	%
None at all		0	0%
Little		2	3.3%
Average		2	3.3%
Significant		47	78.3%
Entirely		9	15%
Total Respondents		60	100%

Table 5.15: Contribution to Learning

Again for this question, the analysis is influenced by the data obtained early with regard to respondents. The response to the question varied depending on the background of the participant, although in this case, most of the data points towards a general acceptance of the contribution the medium plays towards their learning process (see Table 5.15).

There are variations to that statement. Respondents returned inputs ranging from having little impact on their existing learning to that of an entire reliance. Both sets of comments have their limitations because the access to the full range of relevant knowledge is still restricted. However, it is

interesting to observe within the collected data that more than 75% of the total respondents indicated that the Internet made a significant contribution to their learning.

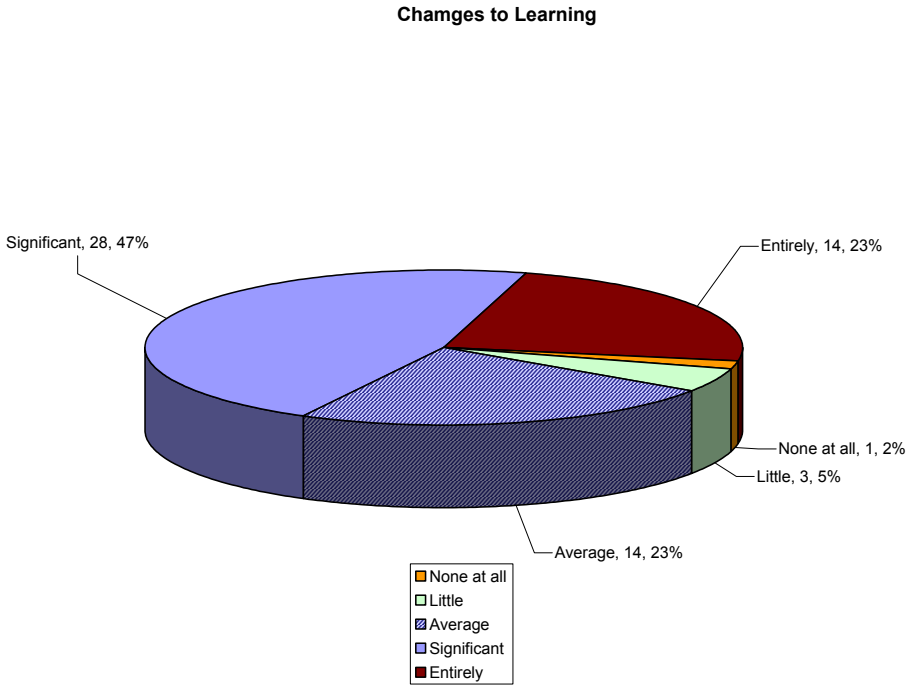


Figure 5.14: Changes to Learning

Q19.	Has having your course materials available for access through the Internet made significant changes in the way you study?	Response	
		N	%
None at all		1	1.7%
Little		3	5%
Average		14	23.3%
Significant		28	46.7%
Entirely		14	23.3%
Total Respondents		60	100%

Table 5.16: Changes to learning

The fundamental key behind the implementation of the flexible delivery policy by the various institutions is to foster a culture where a shift towards a non-facility based learning environment is developed. To achieve that, the institutions have initiated reforms within the existing practices to encourage that transition. For instance the Queensland University of

Technology has the policy requirement that all programmes must have a set minimum amount of course materials of the module available online.

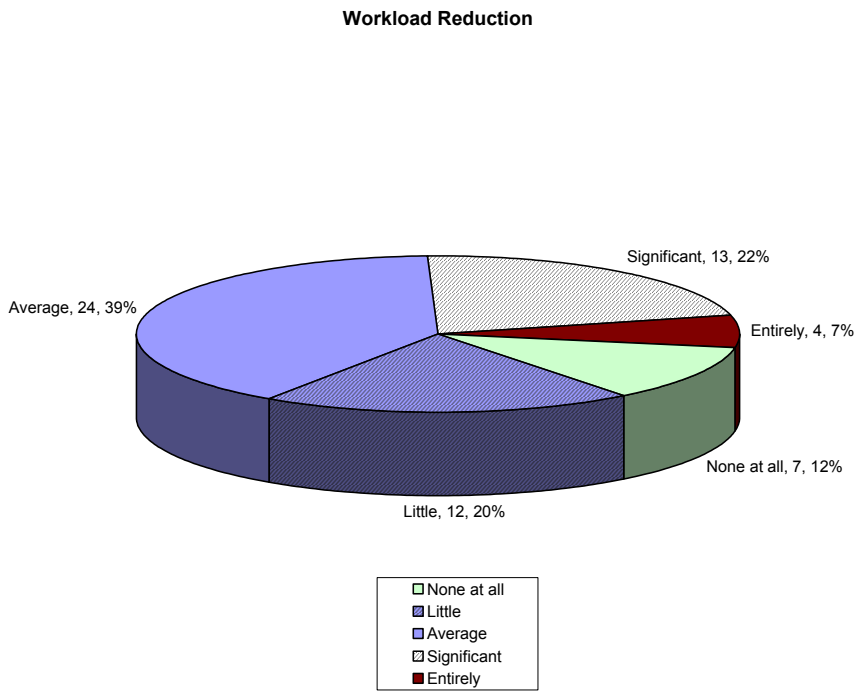


Figure 5.15: Workload Reduction

Q20. Has it reduced your workload?	Response	
	N	%
None at all	7	11.7%
Little	12	20%
Average	24	40%
Significant	13	21.7%
Entirely	4	6.7%
Total Respondents	60	100%

Table 5.17: Workload Reduction

One of the main drivers behind the implementation of the flexible delivery policy is in the benefits of time management that the methodology will bring to its subscribers. The flexible delivery policy has its roots in the empowerment of learning. By shifting the responsibility of managing time allocation from the institution to the learner, it is expected to create a learning environment optimised to the needs of the learner.

However, the data collected presented a different picture. In contrast to the expected distribution of responses to the workload balance, the collected data reflected that many of the respondents did not feel that their workload has been appreciably reduced.

Of the 60, only 68.3% (participants with an average or above answer) replied with a positive response. Although the idea behind the implementation of the flexible policies is to empower the user, it still has limited success in the time and workload management aspects. Examined from an institutional perspective with regard to workload reduction, such a response is relatively distributed across the spectrum of responses.

Of the 24 Queensland University of Technology respondents, 48% replied that they observed only an average level of change to their existing workload with the implementation of the flexible delivery methodology. The figure for respondents from Griffith University was 35% out of a total of 20 respondents.

The reason for the distribution is that most of the respondents graduated from a system where learning is provided through a strictly regulated scheduled environment. In that environment, workload and time management are practices that have already been established for them.

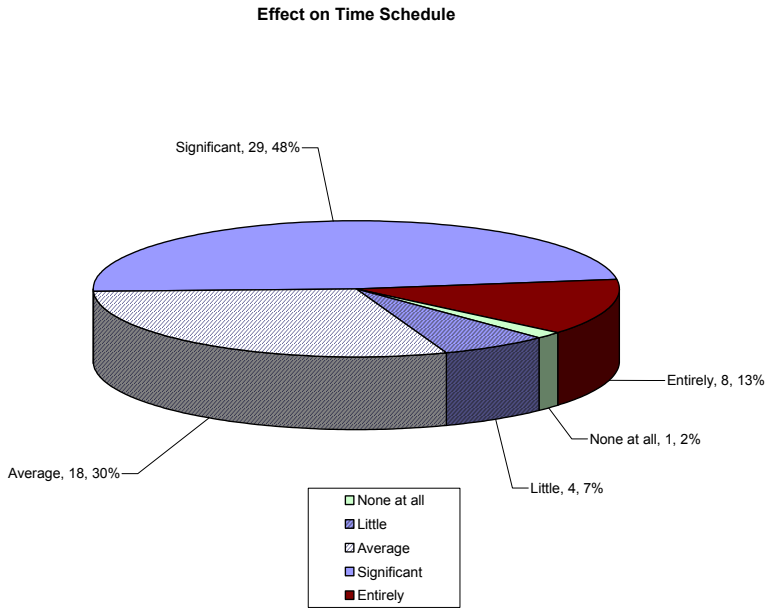


Figure 5.16: Effect of Time Schedule

Q21.	Has it a beneficial effect on your time schedule?	Response	
		N	%
None at all		1	1.7%
Little		4	6.7%
Average		18	30%
Significant		29	48.3%
Entirely		8	13.3%
Total Respondents		60	100%

Table 5.18: Time Scheduling

The response for Question 21 contrasts to the data collected for Question 20. Here, most of the respondents felt that a flexible delivery policy improved their time schedule dramatically. Almost 50% of the total respondents replied that the changeover had a significant beneficial effect on their time scheduling (see Table 5.18). This presents a conflicting situation where the respondents have the expectation that the benefits using a LMS enabled strategy would reduce the burden of time management.

Moreover, when analysed from an institutional level, the responses obtained matched the overall response level. The response from the three institutions was 56%, 50% and 40% from the institutions of QANTM, Queensland University of Technology and Griffith respectively. Of the three

institutions, only one however, had a user satisfaction rate of observing significant effect on time scheduling falling below 50%. That response by the participants from Griffith University can be attributed to the different definition of what the paradigm is and how it is implemented and promoted.

With the increasing transition towards an alternative model, that response on time scheduling should have a positive shift so that users would have better control over their time management.

Q22.	How much of your course in your opinion make use of flexible delivery?	Response	
		N	%
None at all		1	1.7%
Little		9	15%
Average		26	43.3%
Significant		21	35%
Entirely		1	1.7%
Total Respondents		58	96.7%
Did not respond		2	3.3%

Table 5.19: Use of Flexible Delivery

The data collected for Question 22 (see Appendix C) however contrasted with that obtained for the earlier question. Here, the values ranged from 20% to 50%. It is interesting to note that despite Griffith University's position as one of the earliest adopters of the flexible delivery approach, its students reflected that they did not observe significant use of the approach within their current course. The response is however also very much similar to that of the respondents from both the Queensland University of Technology and QANTM with regard to the extent of how the approach is applied.

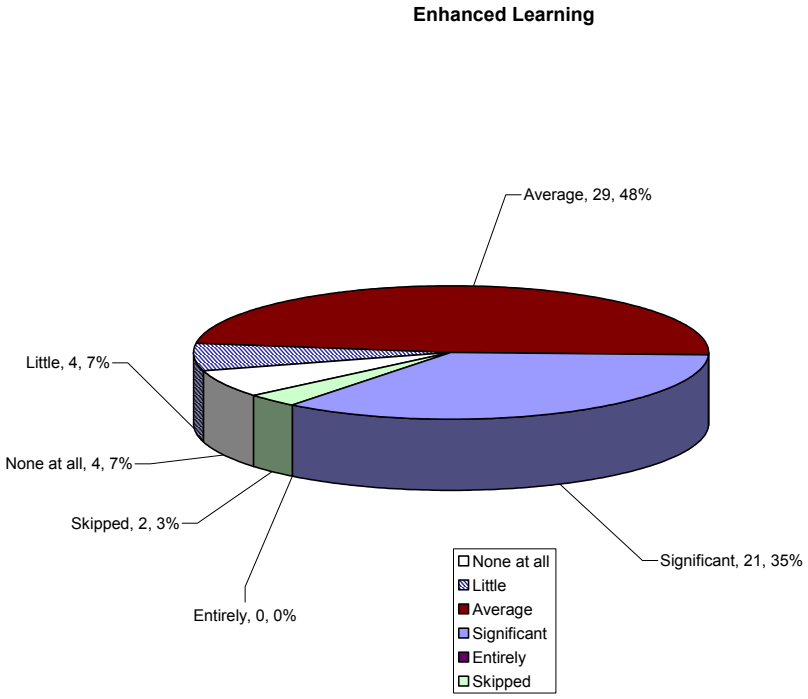


Figure 5.17: Enhanced Learning

Q23. How much has flexible delivery enhanced your learning?	Response	
	N	%
None at all	4	6.7%
Little	4	6.7%
Average	29	48.3%
Significant	21	35%
Entirely	0	0%
Total Respondents	58	96.6%
Did not respond	2	3.3%

Table 5.20: Enhanced Learning

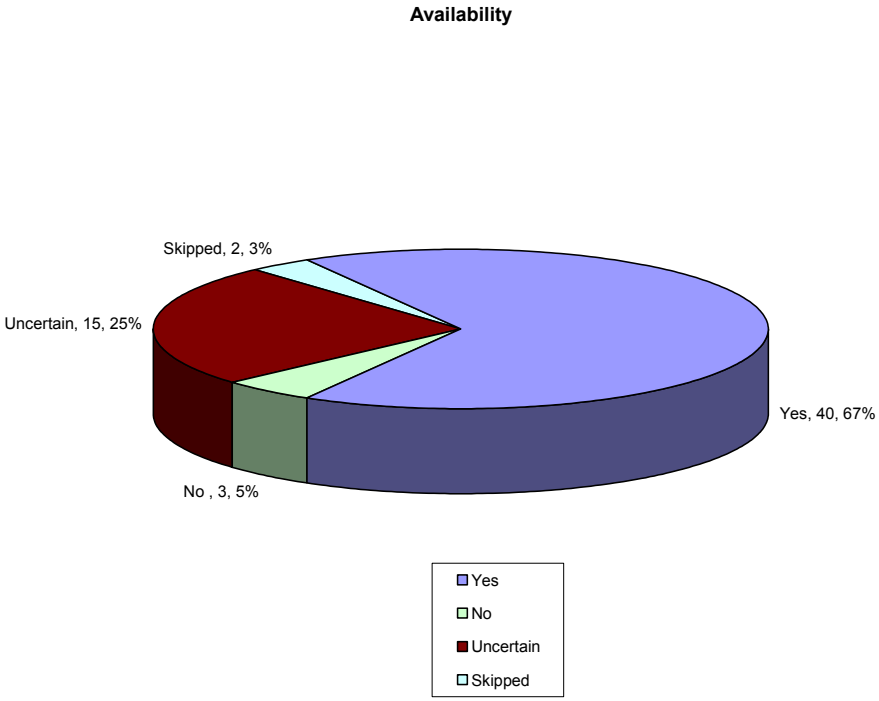


Figure 5.18: Material Availability

When compared institutionally, the responses indicated by the 3 institutions showed variations. 81% of the total QUT students indicated that the Internet played a significant aspect in their learning. This compared well with the 70% given by the Griffith students for the same question and 75% by QANTM students.

Q24.	Would you like to see more materials available through flexible delivery?	Response	
		N	%
Yes		40	66.7%
No		3	5%
Uncertain		15	25%
Total Respondents		58	96.7%
Did not respond		2	3.3%

Table 5.21: Materials Availability

As to whether students would like to see more materials available through flexible delivery, the response for the question was a resounding yes for 66% of the responses gathered (see Table 5.21). Although the present level of materials available online is relatively comprehensive, the desire for a more comprehensive provision of materials is always there. Given that

the present state of flexible delivery is still in its infancy, some of the respondents did indicate their uncertainty about what the impact of having an increased level of resource provision would result in. It has to be pointed out too that at least 5% did declare that the present provision levels as being adequate for their existing requirements. The number of "uncertain" responses is also very high.

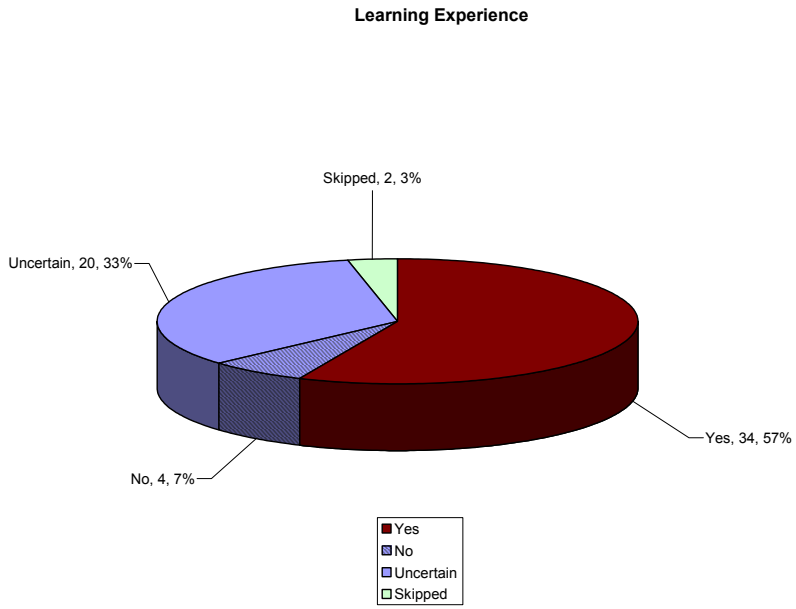


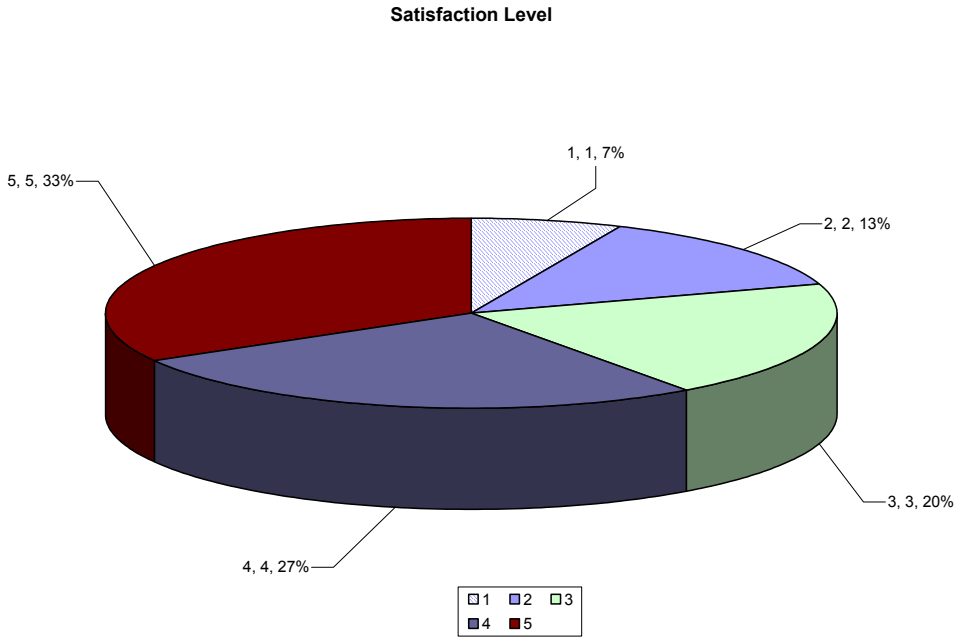
Figure 5.19: Learning Experience

Q25.	Do you think you will have a better learning experience through the use of flexible delivery?	Response	
		N	%
Yes		34	56.7%
No		4	6.7%
Uncertain		20	33.3%
Total Respondents		58	96.7%
Did not respond		2	3.3%

Table 5.22: Use of Flexible Delivery

With respect to Question 25, the main objective was to collect data that reflected the experiential confidence level that the users had in relation to learning through the implementation of a flexible delivery regime. The issue of respondents desiring to obtain a better experience, both quantitative and qualitative is a result of the expectation to obtain a return on the investment that they have made towards the acquisition of a university education. This

investment reflects the level of expectation the respondents have on the acquisition of the relevant qualification in pursuit of their desire to attain personal growth or professional development.



(1 = Totally Dissatisfied, 5 = Totally Satisfied)

Figure 5.20: Satisfaction Level

Q26.	What is the level of satisfaction you have with the way your current course is being delivered at present? (1 being totally dissatisfied 5 being totally satisfied)	Response	
		N	%
1		2	3.3%
2		8	13.3%
3		22	36.7%
4		26	43.3%
5		0	0%
Total Respondents		58	96.7%
Did not respond		2	3.3%

Table 5.23: User Satisfaction

Most of the respondents indicated that they were generally satisfied with the level of quality in their respective programmes (see Table 5.23). However, none of them were totally satisfied. This can be due to the many bugs still inherent in the system that have yet to be rectified. As in any new

implementation, the transition to the flexible delivery model will tend to experience the same operational and implementation issues affecting integration.

With the continued development and monitoring of the operational aspects of the transition, hopefully these problems will be identified and rectified so as to provide a quality level of service provision.

With median response with regard to the overall satisfaction level ranging from 3 – 4 on the scale provided, it can be observed that most of the respondents were positive about adopting the flexible delivery paradigm. From an institutional perspective, that figure then changes slightly. At the institutional level, the responses garnered from the institutions of the Queensland University of Technology, Griffith and QANTM remained at level 4 (Fixed at 58%, 45% and 18% respectively).

It has to be highlighted that the response can only serve as an indication of the prevailing sentiments towards the specific approaches to course delivery in study. It also has to be noted that the responses are subjective in that they are based on the respondents' attitude with regard to the institutions that they are enrolled in and how much satisfaction they are deriving from that association.

5.5 Summary

The above data reflected a number of key issues, these issues dealt mainly with the expectations of the end users with respect to what they actually want the system to be capable of delivering.

What the data reflects are the similarities that exist across the institutions with respect to the user ability to adapt to the changed learning environment. It also shows that learners in the knowledge society are more techno-savvy and are able to adapt and adopt information at a greater rate than the learners from the recent past.

Although the data are not conclusive, it is hoped that they are able to provide some links to the present user expectations and sentiments with regard to the use of flexible delivery within the course that they have enrolled in.

CHAPTER 6

6. Discussion & conclusion

6.1 Introduction

As indicated in the beginning of this thesis, the objective was to develop an understanding of the level of user response to a learner management approach towards the conduct of media technology degree programmes in selected Queensland Institutes of Higher Learning. This was accomplished by the identifying the respective approaches adopted by the studied institutions as the main points of study.

The data collected in this thesis highlighted a number of important issues that need to be addressed if the present state of flexible delivery as a complementary approach to is to be furthered.

It was observed that flexible delivery techniques are still in their developmental stages. Thus, the success rate of its implementation is observed to be varied and distributed across the broad spectrum of institutions. Its record so far has been determinant upon a range of contextual and institutional factors.

In course of the study, a number of key points were identified. These points highlighted what the learning approach can offer and examined how the approach achieved its learning objectives.

6.2 Findings

This thesis has developed a number of significant findings, primarily related to the policy development and application aspects of the use of flexible delivery.

From the responses gathered, the following points were of interest:

i. The different strategies adopted by the studied institutions in the definition and how the flexible delivery approach was implemented. Each of the studied institutions adopted a solution that was developed in consideration of the specific requirements of the very institutions. Through the examination of the respective approaches to defining and implementing a LMS system, it was observed that the selected adoption be one that is of sufficient robustness and flexibility to accommodate the evolving environment of the institutions. That environment can itself be in the form of the direction of the institutional development or in the changing learning expectations of the student body. To be able to meet that dynamic environment, any LMS strategy must have the capability adaptiveness and expansion. It must be able to evolve in tandem with the needs of the institution instead of one where the relationship is one where the institution is restricted by the adopted solution.

ii. The internal organizational relationships present in the development and execution of the institutional flexible delivery policies and how they function in relation to each other (Refer to section 4.1 to 4.5). This relationship manifests itself in the manner of which the various institutions organizational hierarchy is patterned on.

Although the institutions participating in the study all maintained a organizational structure that was essentially one that was patterned against the established hierarchical model seen in many other higher education providers. The manner as which that model was developed and applied was distinctly influenced by the business model which the institutions adopted as part of their operational strategy.

The direction and positioning of the respective institutions and their targeted market base were the differentiating variable in an oligopolies industry. Although the programmes offered by the studied institutions were essentially the same, the manner as which they were delivered was markedly different. This was observed in the manner as which the

programmes were defined and developed. Both QUT and GU were institutions of the traditional model in relation to the commercial model adopted by that of QANTM. In addition, the relative size and history of the studied institutions also played an important aspect in the way as which the respective solutions where adopted.

iii. The differences between commercial and customised approaches to content delivery and how they conform to the specific requirements of the institution (Refer to section 2.6 to 2.8 and 4.1 to 4.5). The LMS systems adopted by the institutions were selected through a stringent evaluation of the capabilities that they would offer to the user. As such the LMS approaches had to meet to the needs of the adopting user.

However, the needs of the institutions were not the sole variable in the selection of the offered solution. A major factor in the operations of contemporary institutions is that of costs. As the funding dollar becomes more competitive in the coming years, and institutions becoming more responsible for their operating expenditure, the costs of any systems acquisitions and maintenance have risen to become one of the more important points of consideration.

Commercial and customised solutions both have their respective advantages and disadvantages when it comes to the capabilities that they are able to offer to their users. As pointed out earlier, the acquisition and maintenance costs are one of them. Another is that of the adaptability to the users' requirement. Commercial solutions offer a cost advantage as it has the benefit of being able to provide a solution that meets most of what the user requires but not all of what the needs. In contrast, the customised solution is capable of delivering to the user what ever capabilities the user specifies. However, the provision of that expectation often comes at a higher cost than that of the commercial solutions.

iv. The higher education landscape is one of constant change, one where it needs to change to meet with expectations of users and institutions. At the

time of writing, the higher education environment is still subject to constant changes with regards to its definition and environment. This landscape as indicated in chapter 2 is one that is in a state of constant flux, which itself is being influenced by the changing conditions of the global economy. As with the process of learning, the provision of learning is also one that must be constantly upgraded.

Higher education in the coming years will be one that focuses on the paradigm of lifelong learning, that adoption is in consideration of the assessment of the coming economic and employment environment. What paradigm waits after that is dependent on the assessment of that future economic and employment model that comes after that.

v. The emergence of alternative providers of education is a phenomenon that has become an integral characteristic of the higher education environment. It is a phenomenon that integrates the changing consumer behaviour with that of the changing learning environment. (Refer to Survey Questions 22 to 28, Pg 117 to 120). The statement is made with reference to the emergence of alternative higher education providers, in this case often in the form of commercial colleges providing to the full fee paying student market. With the increasing demand on the acquisition of a higher education degree, the demand often exceeds the ability of the existing institutions to provide for. Often such excess demands are taken up by the commercial providers.

Although the provision of higher education is now being catered for by both the traditional public and private universities and commercial colleges, there still remains a gulf in the level of quality of the education being provided by the respective providers. However, that is an issue that is slowly being corrected. The situation is something of which further study is merited; one where a better understand of the relationship between traditional and commercial colleges can be better examined. That changing environment covered in chapter 2 directs to the necessity of preparing the existing infrastructure for that coming transition.

vi. User expectations of what the flexible delivery policy can offer and how that might or might not concur with the expectations set of providers. The contemporary student is one that is markedly different from the student of 10 years ago. The contemporary student is one that is informed and one who is aware of the power that his spending dollar actually possesses. This empowerment translates into a changed teacher-student relationship within the framework of higher education. Although in many respects, the relationship is still established on the traditional model, one where the student participates in the learning process. It must be highlighted that the student is one that is now aware of what he or she want and of how to achieve that objective.

Providers now have the additional challenge of designing and developing a product that is able to fully match that demand of its users. What this directs to is a transition with regards to how and by what extent any policies changes can influence the operation and continued sustainability of the institutions.

vii. Whether flexible delivery as an approach is best used as a supplement to traditional learning instead of a replacement as there are still aspects of learning which cannot be supported by a virtual presence. Learning is an adaptive process. It takes into consideration a range of related and unrelated variables and applies them to obtain a desired solution.

At present, the LMS solutions that are in use within institutions still have their respective limitation with regards to the degree of coverage it offers. Higher education is a diverse and dynamic environment and one that is in a constant flux. In that same context, the ability of the adopted LMS solutions and flexible learning approaches to match that changing requirements is limited at best.

Policies and solutions represent only a small aspect of what learning encompass and to that is also restricted to certain subjects only. Within the

context of higher education, there are certain areas of studies that by nature of their specialization not suitable for delivery via a flexible learning approach and to that prepared for delivery using a LMS system. The subjects range from certain fields of medical studies to creative arts based fields.

For any measure to be successfully implemented, the best strategy is to adopt a balanced and measure implementation of the available resources. That implementation must be one that makes full use of the available capabilities of the specified institution and programme.

viii. Multimedia education is still in the developmental stages, driven by the continually developing technologies and competencies. It is a process that will soon progress into an intermediate and advanced status. The field of multimedia education is one that is still evolving, the markers of which defines the field is one that is fluid and dynamic in nature.

This point was a lynchpin in the analysis of the research question. The area of multimedia education is one that is technology driven and maintained. It is an area of where further development is dependent on how the technology is conceptualised and applied.

The present status of what encompasses multimedia education at the higher level is one that is subject to changes and those changes will be the result of how the economic and technological forces direct them to.

The above are of which some of the major points observed during the course of the study and of which are covered in detail in the body of the thesis. The points by themselves can be used as a reference of which further study can be initiated to develop a clearer picture of the relationships that exist within the subject of developments in multimedia education.

6.2.1. Support

Support is an important concern as the level of support available for users of any delivery system determines its viability. Contextually, the level of support reflects the level of investment the institution directs to the undertaking. This in turn relates to the level of integration of technology and other support systems that are present within the institution.

In the cases studied, the institutions had in place a considerable capability with regard to the level of support offered to their users. These support functions are often present in two forms, either through a web presence or through a physical representative in the form of a technical support staff.

However, the current model of how support is being defined needs reassessment. With the transition towards a greater emphasis on flexible delivery, there needs to be a complementary capability with regard to the support for users. This can be in form of redefining how support is provided and also identifying alternative forms of providing that support. For example, through applications such as modified expert systems, users are allowed to isolate and rectify any problems that they might have.

6.2.2. Technology

The resilience of the technology used in the adopted learning system determines its effectiveness over the medium term. Technology is also one of the major components of overall operational costs.

For most institutions, maintaining the currency of their information technology infrastructure requires a significant amount of investment. Technology is an extremely fluid variable. Its development changes quickly and users of the technology are expected to adapt to those changes.

An observation from the study reflected that in order to maintain the effectiveness of the adopted flexible delivery methodology, there needs to

be an awareness of the function technology plays in the long term development of the programme.

Through statements collected from both the interviews with staff members and survey respondents, the issue of technology was highlighted as an area that requires careful monitoring. By identifying the technology that allows for a development growth that balances the need for both functionality and economic sustainability, it will then allow for the maximum utility to be derived from that investment with minimum additional costs aside from the initial capital investments.

6.2.3. Administration

During the course of the study, it was observed that management and administration of the delivery system is an important function that also determines the viability of the adopted flexible delivery system.

Within any adopted system, there needs to be present a reliable and stable administrative backend to support the management of such an operation. Although there will be limitations with regard to the actual implementation, issues can often be mediated through the proper planning and resource management and allocation during the initial phases of any implementation program.

Administration is an area that will need further study, as it encompasses the synergies of a variety of different disciplines under a common umbrella. For any flexible delivery policy to be effectively integrated into the framework of any institution, the proper infrastructure needs to be positioned so as to ensure that its implementation is successfully catered for. This means that the proper training and administration of protocols and guidelines need to be established and implemented within the organization. The administrative system interface also needs to be designed with the requirements of the end user in mind.

6.2.4. Content

The content released through the system would have to be of a quality commensurate with the level of work expected from its enrolled students.

The design of the content in the three programmes that were studied needs further attention so as to ensure that it is compatible with the objectives of the unit offered. With the increasing prevalence of materials available, especially through sources such as the Internet, the task of sorting out what is relevant and what is not becomes increasingly complex.

How this relates to flexible delivery is that it requires training of students in information retrieval techniques as these skills will assist users in the task of collating the mass of information available to them.

6.3 Points for further study and development

The thesis is not a definitive research into the expectations of users with regard to the implementation of flexible delivery into the framework of the media technology programmes. However, it is hoped that the findings derived can be used as a reference for future research into the subject.

There were certain constraints encountered during the course of the study, issues which could have been better resolved and rectified. This included the design and scoping of the study and the timeline as to which the various components were to be completed. The details of which can be found in section 3.4.

A further extension of where this research would be to study how the use of new technologies can enhance the overall experience of learning and to a smaller extent that, how the various units can be delivered.

6.4 Conclusion

The study revealed a number of interesting issues that affect the deployment of flexible delivery as a standardised course delivery methodology in institutions of higher education.

These issues range from factors that are subject to internal forces, such as the operational environment in which it is designed, to that of factors which are subject to external forces.

For the traditional IHLs like Griffith University and the Queensland University of Technology, they suffer from the disadvantage of having to support an operationally expensive infrastructure base. This limits the pace at which they can develop the LMS to suit their specific operating requirements. Compared with the newer commercial institutions like QANTM, they are less likely to react to any immediate changes in the market. However, the relative size also benefits the traditional IHLs in that they are better able to absorb any major changes to the educational market. In this case the relative sizes of the institutions play to their advantage due to the presence of their many faculties and research potential.

The design and implementation of such solutions is a difficult process to balance but the path that it takes will result in a synergy that would create the ideal environment for such implementations to flourish.

There is a difference in how the concept of flexible delivery is defined across the institutions studied. This variation can be attributed to the specific requirements that exist for each organisation. The conditions and objectives that each institution abides by is influenced by the strategic direction that each has adopted with respect to its position within the higher education industry.

Highlighted in the preceding chapter, the learner profile of the average student in the knowledge environment will be one whose characteristics will

be markedly different from its predecessor. The learner will be one that is raised in technological centric environment. Adapting to new inputs will be a normative function of societal function. (Some functions of which can be seen in Section 2.5.1).

With the increasing use of the Internet as the next communications and media delivery medium, institutions see the benefits of having an online presence. In addition to the institutional presence, there are the commercial interests. Most importantly, the creation of the user led portals where information is freely exchanged through forums and interactive knowledge repositories like that of the *Wikipedia*[i], where the required knowledge is readily accessible. Moreover, through the use of search engines like *Google*[ii], new information is constantly updated and added to the database of the search engines. What this means is that the user can access any information through a key word or concept search.

With the increasing integrated environment, the Internet will in the future become the dominant medium where both communications and learning will take place. It will take over from the traditional mediums as the present learning methodologies become more integrated.

Based on the response from the three institutions, it is evident that the trend is towards the Internet as the new learning portal. With almost 75% of total respondents having a positive response, it seems that it will be only a matter of time to see that figure increase.

The changes that is happening to the learning environment relate to the need for learning to be re-evaluated to match the environment of future, it has to be changes that are still cognizant of the final outcome of the process which is to acquire the skill and ability to process new ideas and information. The transition from a knowledge-information-networked society call for the need to re-evaluate learning to match the environment of future. The changes made to how learning can be enhanced should still

cognizant of the final outcome of the processes, which is to acquire the skill and ability to process new ideas and information

Flexible learning is a process; it is not simply a delivery methodology that alters the learning patterns of learners. It is a process that shifts the mentality and practices of both teachers and learners and seeks to optimise the way that resources are managed so that it is consumed at a more user centric, time centric pace.

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[i] Wikipedia: http://www.wikipedia.org

[ii] Google: http://www.google.com

Appendix A – Consent Form

Queensland University of Technology

Researcher:	Kenneth Seah Creative Industries Research and Applications Centre (CIRAC) Queensland University of Technology Australia Tel. (07) 3864 3818
Project Title:	New Media and Flexible Delivery in Higher Education: The Policy Process

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The investigators conducting this research abide by the principles governing the ethical conduct of research. This form and the accompanying participant information package provide an outline of the study and the benefits to yourself and the community.

Your signature below will indicate that:

- You have received the subject information package and have read its contents.
- You clearly understand the nature of the study and that you have been given an opportunity to discuss the project with the investigator prior to the commencement of the interview.
- Your participation is voluntary and may be terminated by yourself at anytime without commitment or penalty.
- You may direct any enquiries to Kenneth Seah on (07) 3864 3818 or alternatively email to k.seah@qut.edu.au
- You may also direct complaints and enquiries regarding the ethical conduct of the investigation to the Research Ethics Officer on 61 (07) 3864 2340

Your details

Name (optional): _____

Contact no. or email (optional): _____

Signature: _____

Date: ___/___/____

Participant information package

Dear participant,

My name is Kenneth Seah. I am undertaking a research project looking at the convergence of New Media and Flexible Delivery in Institutions of Higher Education and how it impacts upon the policy decision process.

The research is conducted in association with the Creative Industries Research and Application Centre at the Queensland University of Technology, in Australia. The title of the research project is:

New Media and Flexible Delivery in Higher Education: The Policy Process

The information gained from this research will contribute to an understanding of the process which selected modules are identified for transition from a traditional delivery methodology to that of a flexible methodology, and the respective protocols associated with that process.

While your involvement in the project will not directly benefit you, the information will be useful to the broader community and will be published in academic journal articles and made available to local media. Your interview will be recorded and findings derived from it may be used in the research publication.

Participation in this research project is voluntary, you are not required to provide your name, and you may choose to withdraw at any time without comment or penalty.

If you have any questions about the nature of this research, you can contact Kenneth Seah on (07) 3864 3818 or email k.seah@qut.edu.au If you have any complaints about any aspects of this research, you can contact the Research Ethics Officer on 61 (07) 3864 2340.

If you are willing to participate in the study, could you please sign on the attached consent form? Thank you.

Questionnaire Design:

New Media and Flexible Delivery: The Policy Process

Overview

New Media and Flexible Delivery, these are the two operative terms in use within the study. What the study seeks to achieve is to develop a working understanding of the policy process that results in the integration of New Media with Flexible Delivery of course materials within the context of its application within institutions of Higher Education. The rationale is to understand how and by what extents the protocols that are to be observed in the decision to deliver a module using flexible methodologies. The direct result of which is to develop a series of guidelines or protocols that can be used as a template for which future situations can reference upon.

The study seeks to cover what are New Media and the different approaches that it is being interpreted under. New Media is an increasingly becoming an integral element of modern society and in most cases it is synonymous with the application aspects and is often understood as an application-linked concept. With that interpretation, it has specific limitations with the extent at which the concept can evolve. In addition, the interpretation of New Media as mainly application based is too narrowly defined and it runs counter to the non-static nature of the concept of New Media.

The framework that the study is to be structured on is based on identifying the core elements of Economics, Culture, Socio-politics, Globalisation, Reformation and Quality and Accreditation, and how that impacts on the Policy aspect of integrating New Media into a delivery methodology that is in line with the demands of contemporary society. The different
Elements will be discussed and developed in the main body of the thesis.

In addition to the discourse on the factors that influence the development and integration of New Media, a survey that seeks to acquire empirical data on the user response towards the implementation of the respective methodologies in the studied institutions of both the Queensland University of Technology's Communications Design Degree Programme and QANTM's similar degree in Multimedia Design offering. The

actual instrument is developed to obtain datasets that reflect both the demographic and user response profiles.

The targeted sample size for both institutions are that of the students currently enrolled in the 1st to 3rd year cohort of the degree programmes of the institutions. At present, the projected sample size is approximately 150 students per institutions with achievable response target of 10%.

In addition to the survey, a focus group that studies the specifics and interviews with academics and designers on the subject of the adoption and application process will be conducted to obtain a non-empirical response so as to derive a balanced reporting of the findings and resulting in a well-examined conclusion.

Consent

The consent for participant will be in the form of a user login page that will be designed in such a manner that the participant can only access the survey upon reading the information about the purposes of the survey and acknowledging it by selecting a consent given option. If user does not give consent, you will not be given access to the survey itself. This is to ensure that only participants who agrees to the conditions of the survey are allowed to take part in it.

Appendix B – Questionnaire design

Questions Template for use in Survey

		Options
Demographic Information		
1	Institution Currently Enrolled	QUT, QANTM
2	Present Mode of Study	Full Time, Part Time
3	Present Year of Study	1st, 2nd, 3rd, 4th
4	What is your sex	Male, Female
5	What is your age?	18 - 40
6	What is your nationality	Australia, Singapore, New Zealand, Taiwan, China, Vietnam, Norway, Malaysia, Other
7	What is your country of birth	Australia, Singapore, New Zealand, Taiwan, China, Vietnam, Norway, Malaysia, Other
8	What is the highest qualification possessed?	High School Certificate, Diploma, Bachelor Degree, Graduate Diploma, Masters
9	Do you have prior working experience?	Yes, No
10	How many years did you work prior to admission?	1 – 2, 2 – 4, 4 – 6, 6 – 8, 8 – 10
11	What was the mode of employment for the past 2 years?	Full Time, Part Time, Casual

12	What is the main reason for enrolment in programme?	Creative development, Career advancement, Other

Internet Usage

13	How would you rate your skill level in the use of the Internet?	Basic, Intermediate, Advanced
14	How many hours on average per week do you log on to the internet?	1 – 2, 2 – 4, 4 – 6, 6 – 8, 8 – 10, >10
15	How of the above hours is used for learning? I.e. with respect to the research and retrieval of materials used in the course of study.	1 – 2, 2 – 4, 4 – 6, 6 – 8, 8 – 10, >10
16	How much do you rely on the Internet as a research tool in the completion of your study modules?	5 Point scale (None at all = 1) – (A lot = 5)
17	How much of your course materials is available through the Internet?	5 Point scale (None at all = 1) – (A lot = 5)
18	How much of a contribution does the Internet play in your learning?	5 Point scale (None at all = 1) – (A lot = 5)
19	Has having your course materials available for access through the Internet made significant changes in the way you study?	5 Point scale (None at all = 1) – (A lot = 5)
20	Has it reduced your workload?	5 Point scale (None at all = 1) – (A lot = 5)

21	Has it a beneficial effect on your time schedule?	5 Point scale (None at all = 1) – (A lot = 5)

Flexible Delivery

22	How much of your course in your opinion make uses of flexible delivery?	5 Point scale (None at all = 1) – (A lot = 5)
23	How much has flexible delivery enhanced your learning?	5 Point scale (None at all = 1) – (A lot = 5)
24	Would you like to see more materials available through flexible delivery?	Yes, No
25	Do you think you will have a better learning experience through the use of flexible delivery?	Yes, No
26	What is the level of satisfaction you have with the way your current course is being delivered at present?	5 Point scale (Very Dissatisfied = 1) – (Very Satisfied = 5)
27	Do you have any additional comments pertaining to the subject of New Media and Flexible Delivery will be appreciated	Open ended answer

Thank you for participating in the survey, your response will be kept strictly confidential and will only be used for non- commercial purposes.

Summary

Which institution are you currently enrolled in?	
	Response Total
Queensland University of Technology	24
Griffith University	20
QANTM	16
Other (please specify)	0
Total Respondents	60
Did not respond	0

What is your present mode of study?	
	Response Total
Full Time	57
Part Time	3
Total Respondents	60
Did not respond	0

What is your present year of study?	
	Response Total
1st Year	15
2nd Year	20
3rd Year	22
4th Year	2
Total Respondents	59
Did not respond	1

What is your sex?	
	Response Total
Male	29
Female	31
Total Respondents	60
Did not respond	0

What is your age?	
	Response Total
< 17	1
18 – 20	24
21 – 24	24
25 – 30	6
31 – 40	2
41 – 50	3
> 50	0
Total Respondents	60
Did not respond	0

Appendix C – Summary of collected response

What is your nationality?	
	Response Total
Australia	40
New Zealand	0
Singapore	5
Malaysia	0
Brunei	0
Indonesia	0
China	0
Taiwan	2
Hong Kong	1
South Korea	0
Japan	0
India	2
Pakistan	0
Bangladesh	0
Nepal	0
United Kingdom	0
France	0
Norway	2
Sweden	0
Germany	1
Russia	1
United States	0
China	0
Other (please specify)	5
Total Respondents	59
Did not respond	1

Where is your country of birth?	
	Response Total
Australia	35
New Zealand	0
Singapore	5
Malaysia	0
Brunei	0
Indonesia	0
China	0
Taiwan	3
Hong Kong	1
South Korea	0
Japan	0
India	1
Pakistan	0
Bangladesh	0
Nepal	0
United Kingdom	1
France	1
Norway	2
Sweden	0

Germany	2
Russia	0
United States	0
China	0
Other (please specify)	6
Total Respondents	57
Did not respond	3

What is the highest academic qualification attained by yourself?	
	Response Total
Secondary Qualification	30
Diploma	19
Bachelor Degree	8
Graduate Diploma	1
Post Graduate Degree	0
Total Respondents	58
Did not respond	2

Do you have any working experience?	
	Response Total
Yes	37
No	23
Total Respondents	60
Did not respond	0

If yes how many accumulative years of working experience did you have in total?	
	Response Total
0	7
1	9
2	11
3	6
4	0
5	2
6	3
7	2
8	1
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0

> 20	2
Total Respondents	43
Did not respond	17

What was the mode of employment for the past 2 years?	
	Response Total
Full Time	9
Part Time	28
Not Applicable	23
Total Respondents	60
Did not respond	0

What is the main reason for enrolment in programme?	
	Response Total
Creative Development	21
Career Advancement	33
Other (please specify)	6
Total Respondents	60
Did not respond	0

How would you rate your skill level in the use of the Internet?	
	Response Total
Basic	0
Intermediate	15
Advance	45
Total Respondents	60
Did not respond	0

How many hours on average per week do you log on to the internet?	
	Response Total
< 1 Hour	0
1 Hour	0
2 Hours	0
4 Hours	3
6 Hours	7
8 Hours	6
> 10 Hours	44
Total Respondents	60
Did not respond	0

How many of the above hours are used for learning? I.e. with respect to the research and retrieval of materials used in the course of study?	
	Response Total
< 1 Hour	1
1 hour	6
2 Hours	12

4 Hours	20
6 Hours	11
8 Hours	4
> 10 Hours	6
Total Respondents	60
Did not respond	0
How much do you rely on the Internet as a research tool in the completion of your study modules?	
	Response Total
None at all	0
Little	1
Average	5
Significant	43
Entirely	11
Total Respondents	60
Did not respond	0

How much of your course materials are available through the Internet?	
	Response Total
None at all	0
Little	4
Average	9
Significant	35
Entirely	12
Total Respondents	60
Did not respond	0

How much of a contribution does the Internet play in your learning?	
	Response Total
None at all	0
Little	2
Average	2
Significant	47
Entirely	9
Total Respondents	60
Did not respond	0

Has having your course materials available for access through the Internet made significant changes in the way you study?	
	Response Total
None at all	1
Little	3
Average	14
Significant	28
Entirely	14
Total Respondents	60
Did not respond	0

Has it reduced your workload?	
	Response Total
None at all	7
Little	12
Average	24
Significant	13
Entirely	4
Total Respondents	60
Did not respond	0

Has it a beneficial effect on your time schedule?	
	Response Total
None at all	1
Little	4
Average	18
Significant	29
Entirely	8
Total Respondents	60
Did not respond	0

How much of your course in your opinion make use of flexible delivery?	
	Response Total
None at all	1
Little	9
Average	26
Significant	21
Entirely	1
Skipped	2
Total Respondents	58
Did not respond	2

How much has flexible delivery enhanced your learning?	
	Response Total
None at all	4
Little	4
Average	29
Significant	21
Entirely	0
Skipped	2
Total Respondents	58
Did not respond	2

Would you like to see more materials available through flexible delivery?	
	Response Total
Yes	40
No	3
Uncertain	15

Skipped	2
Total Respondents	58
Did not respond	2

Do you think you will have a better learning experience through the use of flexible delivery?	
	Response Total
Yes	34
No	4
Uncertain	20
Skipped	2
Total Respondents	58
Did not respond	2

What is the level of satisfaction you have with the way your current course is being delivered at present? (1 being totally dissatisfied 5 being totally satisfied)	
	Response Total
1	2
2	8
3	22
4	26
5	0
Total Respondents	58
Did not respond	2

Do you have any additional comments pertaining to the subject of New Media and Flexible Delivery?	
Total Respondents	12
Did not respond	48

If you are happy to participate in a follow up focus group please enter your name and email address below so that we can contact you.	
Total Respondents	8
Did not respond	52